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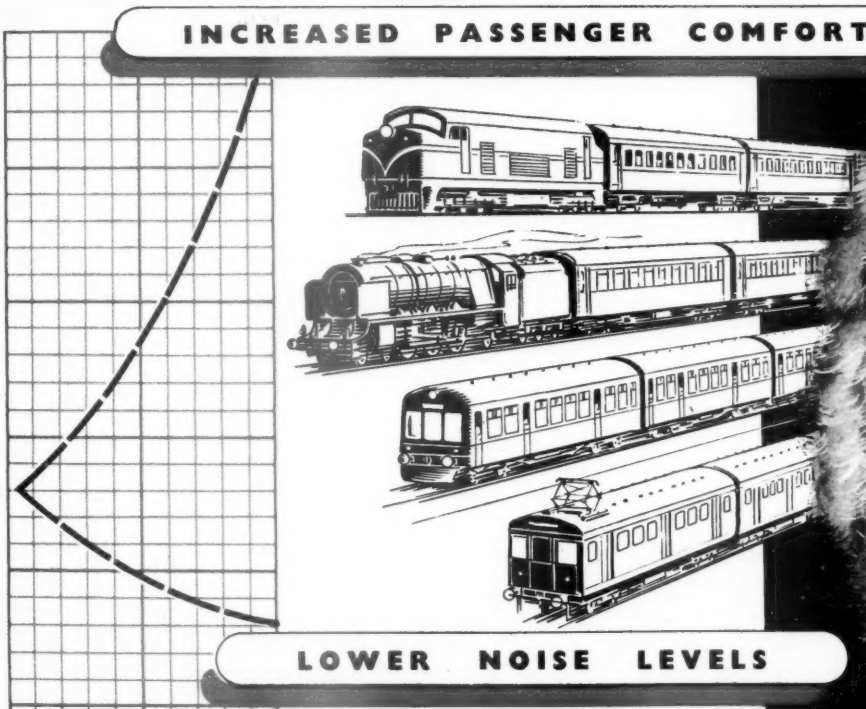

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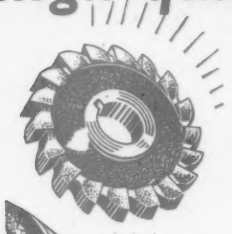

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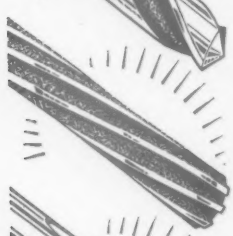

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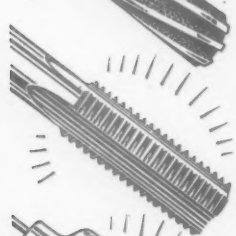

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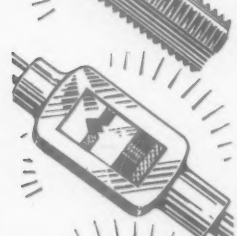

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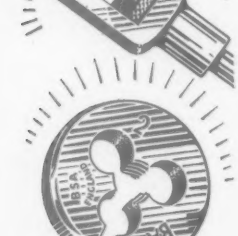

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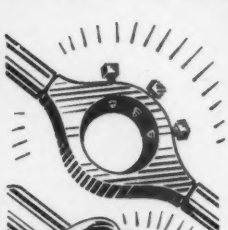

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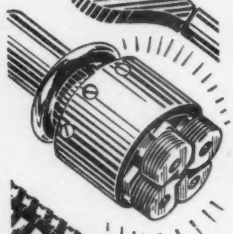

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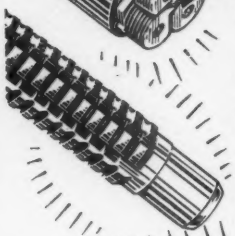

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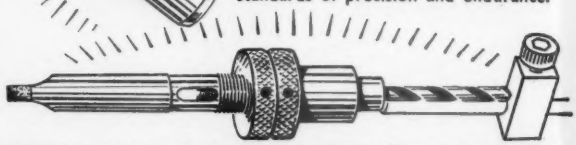

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CONTENTS

	PAGE
Editorial Notes	61
Commons Discuss B.T.C. Contract Procedure	63
Development Plans in Eastern India	64
Postwar Recovery in Western Australia	64
Final Nigerian Railway Report	65
Welded Rail in the U.S.A.	65
Letters to the Editor	66
The Scrap Heap	67
Overseas Railway Affairs	68
Swiss Traverser Wagon for Heavy Loads	70
Prototype Saloon Coaches for British Railways	71
Repairs to Columns of Station Roof	74
Servicing Diesels in New Zealand	75
Personal	77
New Equipment and Processes	81
News Articles	82
Contracts and Tenders	85
Notes and News	85
Railway Stock Market and Official Notices	88

Threat to Railway Modernisation

RECENT speeches by Mr. Peter Thorneycroft, Chancellor of the Exchequer, contrast oddly with a remark of Mr. Harold Watkinson, Minister of Transport & Civil Aviation, during the debate in the House of Commons last week on the British Transport Commission report and accounts for 1956. Mr. Watkinson stated that the Government believed that the Commission had correctly charted its course and should now be left alone to press on with it and make it a success, but Mr. Thorneycroft, speaking of the tightening of restraints on the expansion of national investment, has declared that not even the basic industries of transport, steel, coal, and power can be developed faster than available resources permit. The Government, he states, "has not hesitated, and will not hesitate, to adjust even the most essential investment programmes." No firm decision has been reached as yet, but there is at least a hint that railway modernisation will be slowed down. It will be recalled that early in 1956 the Commission was asked to reduce its capital investment programme for the year by £22 million, and something of the sort may well be in mind for 1957. Already the Commission's schemes have been made more expensive by Government action, for the rates for Exchequer long-term loans to the nationalised industries were raised as from July 13 to 5½ per cent, against the former 5 per cent. The dependence of the Commission on the Exchequer is illustrated by the fact that, after a payment of £52 million to the Commission in March, a further £20 million has been paid by the Exchequer within the last few weeks. These payments are in addition to the regular monthly payments to the Commission in accordance with the two-year scheme, which ends on March 31, 1958, under which the Exchequer supplies certain capital needs. The £20 million was expected to cover the needs of British Railways up to the end of the half-year. Quite apart from any Government action, the claims for a 40-hr. week now being heard from several large trade unions are likely to raise costs and prices. The National Union of Railwaymen announced its intention to press for a 40-hr. week a fortnight ago and a similar claim was presented to the Engineering Employers' Federation yesterday (Thursday) by the Confederation of Shipbuilding & Engineering Unions.

Transport Tribunal Report

ONE of the most important tasks of the Transport Tribunal during 1956, as indicated in its annual report, was the continuation of the public inquiry into the British Transport Commission (Railway Merchandise) Charges Scheme, which first came before the Tribunal on October 10, 1955, and the formulation of a considered decision. The inquiry ended on March 7, 1956, and the Tribunal interim decision appeared on July 23. As the public hearing had lasted 43 days and 24 notices of objection had been lodged, this must be considered a creditable performance. The scheme was finally confirmed, with a number of alterations, on December 31, 1956, and the Tribunal directed that it should come into force on July 1, 1957. A scheme submitted by the Commission on May 24, known as the British Transport Commission (Passenger) Charges Scheme, 1956, which was intended to permit fares to be raised, was adjourned at the Commission request after it had been decided to co-operate in the Government campaign to stabilise prices. This matter was still pending at the end of 1956. Acting in its advisory capacity, the Tribunal recommended in April, 1956, to Mr. Harold Watkinson, Minister of Transport & Civil Aviation, that the Commission application for a 25 per cent increase in the charges for returned empties, a 15 per cent increase for small consignments, and a 10 per cent increase for other railway freights should be authorised. In the event, regulations authorised half the amount asked.

World Bank Loan for Indian Railway Development

THE outcome of the World Bank technical mission study tour of the Indian railways earlier this year, on which we commented in our March 1 issue, is the announcement by Mr. Eugene Black, President of the World Bank, that the bank is to make four loans totalling $90 million to India for developing the Indian railways. The four amounts to be lent are £6,825,000 in sterling ($19·1 million), 8,640 million yen ($24 million), 7,000 million lire ($11·2 million), and $35·7 million in U.S.A. and various European currencies. All the loans are for a term of 15 years, at 5¾ per cent; they will suffice for about one-half of the cost of buying from abroad equipment on which payment falls due this year and next; amortisation will begin in 1961. It is regrettable that it was not possible to obtain from this country the capital for what the World Bank evidently considers a worthwhile investment—and not for the first time, for the bank lent funds in August, 1949, for Indian railway development. On the other hand, it can be expected that a considerable part of the total amount will be spent in the sterling area, and most probably in Britain.

South African Locomotive Order for Britain

THE contract for 135 electric locomotives placed by South African Railways with Metropolitan-Vickers South Africa (Pty.) Ltd. on behalf of Metropolitan-Vickers Electrical Export Co. Ltd. is the largest single order for

electric locomotives ever given out by the administration —and probably one of the largest, if not the largest, contracts ever placed for electric motive power. The order, worth some £7,600,000, was secured against world-wide competition by Metropolitan-Vickers, which supplied its first electric locomotive to the Union as a result of an order received in 1922, and in the intervening years has supplied the S.A.R. with some 200 locomotives in all. The new locomotives will be four-axle 2,000-h.p. class " 5 " machines weighing 80 tons. No doubt these are partly intended to supplement and replace older 1,200-h.p. units operating in Natal, where some class " 5E " Bo-Bo locomotives supplied by the English Electric Co. Ltd. are already working, but this type of locomotive now appears to be favoured for general service throughout the electrified network in South Africa. The electrical equipment will be made by Metropolitan-Vickers at Sheffield and Trafford Park and the mechanical parts by Metropolitan-Vickers—Beyer, Peacock Limited at Stockton. Delivery will commence within 20 months.

Overseas Railway Traffics

CANADIAN PACIFIC RAILWAY revenues for May were $44,844,994 (against $43,587,598 for May, 1956) and railway expenses $40,182,318 ($40,175,296) so that net earnings were $4,662,676 ($3,412,302). Aggregate net earnings from January 1, were $10,211,186 ($10,987,571). Operating revenues of the Canadian National Railways for the same month amounted to $66,299,000. Expenses, taxes, and rents totalled $63,538,000, and the net operating income was $2,761,000. In May, 1956, operating revenues were $69,056,000; expenses, taxes, and rents were $60,827,000 and the net operating income was $8,229,000. International Railways of Central America net revenue from railway operations in May was $190,294 compared with $226,950 in May, 1956, a decrease of $36,656. The aggregate net revenue from railway operations for the period January 1-May 31, was $1,565,420 ($1,592,849). Salvador Railway Company receipts for May were colones 255,000 compared with colones 225,000 in May, 1956.

Equipping the New Zealand Railways

THE better service that will be a direct result of public investment in the railways has been stressed by Mr. J. K. McAlpine, Minister of Railways, New Zealand, outlining the scope of his Government's £20,000,000 Progress Loan. This year, he has stated, some £2,600,000 will be shown in the books for new freight vehicles. More than £900,000 is needed for new locomotives and money is needed also for purchase of other types of rolling stock necessary to maintain equipment at an adequate level. Orders in hand include 18 400-h.p. diesel-electric locomotives for shunting work at main stations, 16 small diesel locomotives for light shunting duties, 10 main-line diesel locomotives, 2,300 general purpose wagons, and 200 high-capacity all-steel insulated wagons for meat export traffic. The Minister has pointed out that the road services operated by the New Zealand Government Railways provide the public with essential transport facilities and must be properly maintained; more than £617,000 is to be spent on these services this year.

Machine Tool Outlook

THE rate of delivery of machine tools continues to quicken, and if the output in the first quarter is representative of that to be expected in the rest of 1957 there are prospects of last year's record deliveries—valued at £85·5 million—being exceeded by a handsome margin. Deliveries to the home market in the first three months of this year were valued at £6·19 million compared with £5·24 million last year, and machine tools for export in the same period were valued at £2·14 million against £1·66 million in 1956. At the present time, however, output is considerably in excess of new orders, which amounted to £4·98 million for the home market against £6·54 million last year. This fall was offset to some extent by an increase in export orders from £2 million to £2·39 million. With the home order book standing at £69·7 million and export orders at £23·5 million, the immediate problem of the industry is probably the reduction of delivery times rather than lack of orders, but British delivery times are now comparing reasonably with those offered by, say, Western Germany. Also, the worst effects of the recession in the motorcar industry and the general contraction in home orders seem to be passing, and the industry is in any case now based on so wide a market that its future is assured.

Heavy Coal Traffic in Eastern India

DURING March, 1957, the Eastern Railway loaded on an average 2,774 wagons of coal daily from the Bengal-Bihar coalfields; the other railway, the South Eastern, serving them, loaded 952 wagons. These figures totalling 3,726 indicate a remarkable increase, and are only 52 wagons short of the Coal Controller's target for 1957-58. The target will be reached, because new wagons and locomotives are being delivered satisfactorily, and numerous line-capacity works are being completed; moreover many traffic bottlenecks are being removed. On the Eastern Railway an increase of nearly 15 per cent in line capacity is being achieved by extending the lengths of goods loops in all important sections of the system, thus enabling the higher tractive effort of the modern locomotive to be used fully in hauling the heaviest possible loads. At present, goods-train loads vary from 70 wagons on the Grand Chord line and 60 on other main lines to 45 on branches; by increasing the capacity to 70 wagons almost everywhere, 15 per cent more traffic can be moved without other improvements in existing facilities. Automatic signalling is being installed in some sections to keep pace with the increasing traffic, and for the same reason Moghalsarai and Ondal marshalling yards are being remodelled (at a cost of £2,625,000) with the latest types of humps, retarders, communications and special fly-overs.

Welding on British Railways

THE full advantage, which is taken by British Railways in modern locomotive, carriage and wagon practice, of the possibilities offered by welding processes to obtain technically sound structures in an economical manner, is described in a paper presented to the recent British Commonwealth Welding Conference at London and Saltburn-by-the-Sea, by Mr. George Foster, Chief Works Metallurgist, London Midland Region. In his paper, Mr. Foster reviews the various welding processes in use and observes that although there is a certain amount of overlapping, generally the processes are employed on well-established applications. Commenting on the construction of the prototype main-line diesel locomotives, built by British Railways, he points out that the complete main frame assemblies as well as fuel tanks, bodywork and so on, are fabricated, the use of welded designs for all these parts resulting in a relatively light structure and an effective disposition of the metal.

Novel Vehicle for Heavy Loads

THE transport problems faced by designers of certain classes of machinery apply particularly to power station equipment, now in increasing demand in several markets. In Switzerland the growing size of some items of electric generating plant has created a desire for improved means of conveying large alternator stators. The problem, therefore, was studied specially by the Swiss Federal Railways in conjunction with well-known manufacturers and the result has been the introduction of the special twin-unit transporter wagon illustrated in our article on page 70. Carried on 18 axles it offers some novel features. A drop girder frame being impossible, the load itself is made to form, when secured in place, a rigid connection between the two swivelling supports, which can be displaced laterally to a certain extent by hydraulic mechanism, under the control of travelling

attendants, to avoid lineside obstacles if required. This interesting vehicle was first used early this year to convey a 208-*tonne* stator, over a route some 640 miles long, from Münchenstein, in the neighbourhood of Basle, to the Rhineland.

Diesel Veteran Withdrawn

THE newest exhibit to find a place in the Baltimore & Ohio Railroad transportation museum at Baltimore is almost the world's first commercially successful diesel-electric locomotive, just retired after 32 years of service. This is the Jersey Central No. 1,000, acquired by that road in 1925 and built by General Electric, Ingersoll-Rand and Alco, a combination which supplied a good number of 300- and 600-b.h.p. double-bogie shunters to American railroads over the years 1925-31, and of standard types. Practically all of these units had long life, and many are still at work. A trial locomotive of the 300 b.h.p. type seems to have been built in 1923/24, but the unit sold to the Jersey Central was the first "production" model. It went into service in September, 1925. The manufacturing combination arose out of G.E's efforts a year or two before to get an engine capable of being installed in a locomotive. Ingersoll-Rand, alone among American engine-makers, responded, with a 300-b.h.p. 600-r.p.m. model, and Alco was inspanned as the locomotive-portion constructor. The combination broke up after Alco acquired the McIntosh & Seymour Corporation and began to build oil engines of its own, but not until such time as diesel shunting had been well established in the United States.

Commons Discuss B.T.C. Contract Procedure

THE debate in the House of Commons last week on the annual report of the British Transport Commission for 1956, which the Opposition, having lost no opportunity of reminding the House and the country that the 1955 report was not debated, might have been expected to exploit to the utmost as a means of airing its views on transport was, on the whole, dull and disappointing; it descended much too soon to matters such as complaints about refreshment room tea. There were some notable exceptions to the general run of speeches, particularly that of Mr. Harold Watkinson, Minister of Transport & Civil Aviation, who introduced the debate. He quoted from the report the Commission's hopes that it will now "be allowed reasonable freedom and a period of stability to press on with reconstruction, and that the whole fabric of public transport will no longer be subjected to periodic and seismic upheaval on political account." That, Mr. Watkinson stated, exactly represented the position to which the Government had now brought the Commission. It is to be hoped that this will indeed be the case, for the Commission, despite all its difficulties, has made a good start with the modernisation of British Railways, and has adhered closely to the financial target for the year which it itself set and which the Government approved.

The two principal Opposition speakers, Mr. Ernest Davies and Mr. G. R. Strauss, both questioned the contracting system used by British Railways. In certain cases, it was suggested, large orders had been placed on a cost-plus basis without competitive tendering or any opportunity being provided for participation by firms equally qualified to do the work. As a consequence, the programme was costing more than it should and the Minister was urged to inquire into the Commission's present practice. This the Parliamentary Secretary, Mr. G. R. H. Nugent, in winding up the debate, undertook to do.

Much contracting is in the hands of the Regions where, in all but one, engineers are responsible for purchasing for their own departments and must at least give technical approval to purchases. Engineers are technicians, not businessmen, and cannot be blamed for dealing with firms the quality of whose work has long been known to them as extremely satisfactory. A great many items of railway equipment are so specialised that those responsible for ordering are bound to set great store on "know-how" in the supplier, proof of which has been given over the years. In addition, railway managements bear a very heavy burden of responsibility for the safety of their passengers, and this naturally tends to make for caution in determining the sources of supply of material which may affect safety. It is safer and easier to continue to deal with the same firms of high repute. It ensures technical satisfaction even if not necessarily at the lowest cost. The same is true of headquarters where responsibility for much of the contracting for the modernisation programme rests, notably for electrification. It was instanced in the debate that contracts for the manufacture and installation of the overhead catenary for electrification over the next five years had been placed with a single firm on a cost-plus basis without other equally reputable firms being given any opportunity to tender effectively, although they had sought to do so. That competitive tendering resulted in lower prices was shown by contracts for apparatus required in connection with the fitting of vacuum brakes. It was claimed that £7 million had been saved by a last-minute decision to invite competitive tenders for a million units after the order had been allocated to a single firm but not confirmed. This firm was to receive £30 a unit but on other offers being made at lower prices it had reduced its price to £23 a unit and the order was then shared out among three or more firms.

The Commission is known to be concerned about the present practice, which it inherited from the former railway companies. It lacks a co-ordinated buying policy and, to put the matter right, two years ago it brought in from the Central Electricity Authority a supplies and purchasing officer, Mr. E. L. Gethin, who recently left the Commission. An internal committee was appointed to inquire into the supplies organisation. It reported last October and is believed to have recommended a centralised co-ordinated supplies policy.

The report proposed the appointment of a Contracts Officer at headquarters to be responsible in consultation with the appropriate departments, including engineering and finance, for preparation of tender lists and conditions of contracts and their placing for supplies of all kinds ordered from headquarters. Codes of practice for application at headquarters and in the Regions were to be established and departure from them would require specific authority. The principle was laid down that in all but exceptional circumstances tenders should be sought from all suppliers with the necessary resources. Any departure would require adequate financial safeguards. The Commission has accepted these recommendations in principle but a Contracts Officer has not yet been appointed.

Any suspicion that there are weaknesses in the Commission purchasing arrangements and that its expenditure is not subject to adequate safeguards to ensure that work is contracted and supplies obtained at lowest possible cost must be allayed. The Parliamentary Secretary assured the House that certain changes in the Commission arrangements were taking place. Since the matter has been raised in such a way as to cast doubts upon the efficiency of the present practice, the Minister has undertaken to look further into the position. There is no doubt that the Commission, even if its inherited methods are cumbersome and old-fashioned, goes to the utmost lengths in normal cases to invite every possiple supplier to tender and to work in a manner which is a model of scrupulous honesty. Its anxiety to place its buying methods beyond all possible reproach is illustrated by the fact that a suggestion was made at one time that tin should be bought on a fixed day each month to avoid the "gambling" element that was supposed to exist when an attempt was made to anticipate market price fluctuations in the manner that would be normal in any commercial undertaking. The publicity given in Parliament and the Press to the case of Mr. E. L. Gethin, formerly Supplies & Production Adviser to the Commission, will presumably be sufficient to ensure that the Commission methods are examined. The Commission, in fact, undertook last Monday to make an early report to the Minister on the subject; but it is likely to be found that the Commission has anticipated criticisms in its proposed re-modelled supplies and production organisation.

Development Plans in Eastern India

THE South Eastern Railway of India, which functioned as the Bengal Nagpur Railway up to July 31, 1955, started as a carrier of foodgrains to famine areas in the Central Provinces. The Nagpur-Rajnandgaon line, 145 miles on the metre gauge, was opened in 1882. The B.N.R. Company, formed in England in 1887, took over this section for conversion to broad gauge. Although the earliest constituent unit of the present S.E.R. was thus created as an insurance against famine, the system developed in other directions, such as the exploitation of the coal deposits in the Bengal-Bihar coalfields, and some years later, of minerals in the eastern and central parts of the country. Although the railway had spare capacity to start with, the development of traffic soon reached capacity. The heavy existing demand for movement and the further increase to be expected during the second Five-Year Plan period, call for substantial additional facilities.

The existing steel plants at Tatanagar and Burnpore, served by the S.E.R., are in process of almost doubling their output. The two new steel plants of 1,000,000-ton capacity each, under construction at Rourkela and Bhilai, will also be served. For the third new steel plant being constructed at Durgapur, the entire requirements of iron ore and limestone will be moved by this railway. Other important developments are new cement factories at Rourkela and Bhilai, and ferro-manganese plants at Joda, Tumsar Road, and Garividi. An aluminium smelter plant is being erected at Hirakud, where hydro-electric power has recently become available. Subsidiary industries will grow up adjoining the new steel plants, besides light industries such as paper-making. The annual production of coal in the country is also expected to be raised from 38,000,000 tons to 60,000,000. When all developments under the Second Plan are completed, daily loading on the S.E.R. is expected to increase from about 3,200 wagons at the commencement of the plan to about 6,900. The bulk of the additional traffic to be carried by the S.E.R. will consist of coal, iron ore, and other materials for heavy industries which have to be transported regularly in large quantities; carriage by road will not be feasible.

To handle this vast increase, certain sections must be doubled, and the capacity of others increased by the provision of additional crossing stations and improved signalling. On the Howrah-Nagpur main line two new yards are being built at Rourkela and Bhilai, as most of the existing yards were already working to saturation point with little room for further development. The Khargpur yard may have to be remodelled and by-passed by through trains to and from Calcutta. Another new avoiding line, from Santragachi to Chitpore and Calcutta Docks via Howrah (Tikiapara), is planned. The rolling stock is being increased to meet traffic requirements; this, in turn, involves expansion of workshop and shed facilities. Other aspects of the plan are the strengthening of track and bridges, improvement of signalling equipment, and expansion of stores depots.

The existing double-line sections and those in process of being doubled will be saturated when the peak traffic develops by the end of the Second Plan period. Even with improved signalling, it will not be possible to move the anticipated train services. It has, therefore, been decided to electrify the following sections over which raw materials will move to the steel works: (*a*) Asansol-Sini (101 miles); (*b*) Tatanagar-Rourkela (102); and (*c*) Rajkharsawan-Dongoaposi (47). Until the Asansol-Chakradharpur-Rourkela section can be electrified, it is proposed to operate this section by diesel traction to cope with the requirements of the steel plants at Rourkela and Bhilai. The total requirements of diesel locomotives of 2,000-h.p. capacity to move the entire traffic is estimated at 104, which will replace 233 steam locomotives. Electrification of the Howrah-Khargpur section, which recently has been worked to capacity, is also envisaged, chiefly to cater for increased suburban passenger traffic.

Implementation of the Second Plan involves recruitment and training of a large number of staff not only for the construction works but also for the maintenance of track and rolling stock, and for the movement of additional traffic. The Operating & Commercial Training School at Sini, which at present trains 230 men a year, will be enlarged to provide training to about 700 a year. On the mechanical and electrical side, about 16,000 men will have to be trained during the Plan period. Improvised arrangements have been made to train staff in Khargpur Workshops as well as in the Districts. Arrangements exist in the schools at Jamalpur and Madhupur, both on the Eastern Railway, for training civil engineering staff. The S.E.R. proposes to develop its own training facilities at Sini for way and works and also signals staff. The Railway Protection Force has a training centre at Khargpur, where sainiks are given a semi-military training. The Accounts Department has recently opened a training school at Garden Reach. The railway employs over 104,000 persons at present; an addition of nearly 40,000 employees is expected during the plan period. Provision for staff welfare includes, besides construction of nearly 8,000 new staff quarters, the building of a number of hospitals and institutes, and arranging adequate water supply, roads, and electric light and power for staff quarters. The number of rest houses and holiday homes also will be increased.

Postwar Recovery in Western Australia

A TENDENCY exists after a decision by a railway administration to change over from steam to diesel haulage, to neglect the steam motive power that remains and to concentrate on the new power units. While the transition period should be made as short as possible, for economy of operation, it is obvious that a considerable time must elapse, in any large railway system, before the changeover is complete, and steam and diesel units must be operated side by side.

A policy of applying the latest developments in steam locomotive design to motive power during such a transition period is advocated by the Chief Mechanical Engineer of the Western Australian Government Railways, Mr. T. Marsland, in a paper read to the Institution of Engineers' Engineering Conference, held at Perth, Western Australia, a few weeks ago. The paper is concerned with postwar developments in rolling stock on the W.A.G.R., and surveys the progress made in providing improved railway operation since 1945. As to the introduction of diesels, Mr. Marsland points out various features which made the new form of motive power attractive. They include the physical difficulty and the rising cost of obtaining sufficient water supplies away from the coastal plain, the poor quality of the coal available, and the fact that nearly 40 per cent of the system is laid with 45-lb. rail, so restricting maximum axleloads to 10 tons. Because of these local conditions, he adds, the use of diesel power is an important factor in the solution of the transport problem in Western Australia, while other factors have been the provision of more powerful and reliable motive power and improved comfort in passenger coaches.

Difficulties in operation at the end of the war are explained by the fact that in 1945 over 84 per cent of all locomotive stock was more than 30 years old, the age often reckoned to be the economic life of a unit, and the carriage and wagon stock was proportionally obsolete; in common with most railway authorities, the necessity of the construction or reconditioning of passenger vehicles became imperative because of serious road competition.

Of particular interest to readers of this journal, in view of the series of articles which appeared between January and April of this year under the title "Track Loading Fundamentals," the author, Mr. C. W. Clarke, Assistant Commissioner (Engineering), Western Australian Government Railways, also read a paper to the Conference entitled "The Relationship between Vehicle Design and Track Loading." While much of this paper covers information published in his articles, Mr. Clarke goes on to describe

how the weight distribution of the Western Australian postwar locomotive designs, both steam and diesel, were worked out according to his theories of track loading. Commenting on the design of the " X " class 2-Do-2 diesel-electric locomotive, the most powerful diesel-electric locomotive operating on any Australian 45-lb. tracks, of which 48 have now been supplied to the system, he observes that although no calculations of track stresses or deformation can be regarded as exact, the analytical computed track stresses compare well with the results achieved with the unit in practice.

Final Nigerian Railway Report

THE report of the Nigerian Railway for the period April 1-September 30, 1955, is the last to be issued, the Nigerian Railway Corporation having become responsible for the railway from October 1, 1955. It is also the last to be signed as General Manager by Sir Ralf Emerson, who has been appointed Chairman of the Corporation. In a foreword to the report, Mr. Abubakar T. Balewa, Minister of Transport, states that it marks the end of an epoch in the annals of the railway, which is no longer a government department but is a statutory corporation. The transfer was effected smoothly and has had the effect that Nigerian members of the Corporation, numbering eight out of a total membership of 13, are now taking an active part in formulating the policies of the Corporation. The period of the report was also the first in which railway and port working were separated, as on April 1, 1955, the responsibility for the control and operation of the railway-served wharves at Lagos (Apapa) and Port Harcourt passed to the Nigerian Ports Authority.

In the six months, operating receipts continued to advance, with passenger revenue 4·3 per cent and freight revenue 10·1 per cent higher than in the corresponding period of 1954. An increase in long-distance haulage at the expense of short-distance traffic was the main reason for the freight revenue improvement. This tendency, the report states, is a continuing one, which began in the postwar years when, because of inadequacy of equipment, it was necessary to discourage short-distance traffic in the coastal belt in order to concentrate resources on the movement of export crops from the north. The time-lag in the delivery of new equipment and the unprecedented increase in goods traffic combined to create a position in which demand for transport exceeded the supply. It was not until the period under review that locomotive power reached, for the first time since 1939, a level adequate to meet all demands on it. The railway is not able to lavish resources on attempts to regain short-distance traffic which has passed to the roads because of the increasing demands for long-distance haulage. Wagon-stock, rather than locomotive capacity, was the limiting factor in freight movement but wagon utilisation has improved steadily. Miles per day per wagon in use rose from 58·6 in April, 1955, to 60·7 in September and to 66·5 in May, 1956. In the half-year, all but 37,000 tons of the balance of the 1954 groundnut crop was carried, and the remainder was moved in October. This meant that for the first time for four years there was no stock of nuts waiting for transport from the north when the new crop started to come in.

Passenger receipts amounted to £751,000 compared with £720,000 in the corresponding period of 1954. The organisation set up during the period to combat fraudulent and ticketless travel, however, has shown the magnitude of the revenue leakages that occur, and although the passenger receipts are better than ever before they are not considered altogether satisfactory. Operating revenue reached a record figure, but expenditure was greatly increased by the introduction of new rates of pay which became operative on October 1, 1954. The increased charge for salaries and wages, compared with the same months of 1954, was £480,000, and the cost is expected to be some £500,000 in a normal full working year, certain special costs having been incurred in the half-year under review. There are corresponding increases in pension fund contributions.

During the half-year the remodelling of Ibadan station was completed and by the end of the period 48 miles of the Kafanchan-Jos section had been relaid in 60-lb. R.B.S. material. Preparatory work for the relaying of the Port Harcourt-Enugu section with 80-lb. R.B.S. material was started. The diesel running shed and workshop at Zaria was brought into use and a further seven locomotives, including three diesels, were placed in main-line service. For shunting duties, five locomotives went into service, and 14 new coaches and 110 wagons were taken into use. On April 15, 1955, a regular service using the 750-h.p. Bo-Bo English Electric diesel-electric locomotives was started between Zaria and Kano. The Governor of Northern Nigeria, Sir Bryan E. Sharwood-Smith, drove a train from Zaria to Likoro after he and the Minister of Transport had inspected one of the locomotives at Zaria. The Acting Governor-General of the Federation, Sir Hugo M rshall, with the Minister of Transport, opened Lagos Terminus on May 25, 1955.

Some details of working in 1956 were given in an editorial article in our issue of May 24 last.

	Year 1954-55	Half-year, April 1-September 30, 1955
	(thousands)	
Passenger journeys	5,451	2,735
Tonnage hauled (paying)	1,983	974
Passenger train-miles	520	312
Mixed train-miles	1,119	536
Goods train-miles	4,501	2,271
Departmental train-miles	125	80
	(£ thousands)	
Passenger, parcels and mails receipts	1,500	754
Goods and livestock receipts	11,371	5,426
Road transport receipts	123	56
Total operating receipts	13,374	6,337
Operating expenditure	7,718	4,248
Operating surplus	5,656	2,089
Renewals contributions	1,500	750
Interest on capital	828	451
Net surplus	3,335	370

Welded Rail in the U.S.A.

(By a correspondent)

THE first experiments in the United States with continuously-welded rail were made in the late 1930s, in particular in 1937, when 30 miles of such rail was laid. From 1939 to 1946, during the war period, very little was done in this direction, but in 1947 the laying of welded rail recommenced, and by 1955 a total of 266 miles of continuously-welded rail was installed. The Atchison, Topeka & Santa Fe, Minneapolis, St. Paul & Sault Ste. Marie (" Soo " Line), Elgin, Joliet & Eastern, and Toledo, Peoria & Western Railroads have now decided that continuous welding is to be their future track standard. In 1956 the Santa Fe alone laid a total of 250 miles of track in this way, and during 1957 is increasing the figure to 285 miles, which is its entire relaying programme for the present year. The elimination of rail-joint maintenance is claimed to be more than covering the additional cost of welding, transporting the welded strings to site, and handling them.

In general, few troubles have been experienced. Expansion and contraction at the ends of welded strings has been little more than normal, and has been restrained by increasing the number of rail anchors applied over the last six lengths of rail (234 ft.) at the end of each string. There has been a limited number of broken welds, but with the methods of welding now used, chiefly oxy-acetylene pressure welding and electric flash-butt welding, the welds in general are stronger than the rails themselves, and fracture trouble is being eliminated. It has been proved that, given proper anchorage, no trouble is experienced with buckling, but that considerable care has to be exercised as to the temperatures at which continuously-welded rail is surfaced. If this work is attempted at a temperature well above that at which the rails were originally laid, the risk of buckling is considerable, and cases have occurred in which it has been necessary to cut a length out of a

buckled long welded rail in order to get it back into position. But there are engineers who consider that it should be possible, with adequate precautions, to surface continuously welded track in any weather conditions.

The strongest objections to welded track are on lines which are subject to the most extreme range in temperatures. Other objections arise from the difficulties that are experienced if rail wear reveals the existence of a defect in a long welded rail which requires removal of the affected length from the track. On some railways this is cut out, a new short length of rail is inserted, and is connected to the two adjacent rail-ends by fishplates; on other railways the replacement length is welded into positon in situ and the continuous welding is thus restored. In either case the procedure necessary is likely to result in delays to traffic. At the end of its effective life, also, the transfer of continuously-welded rail from main running lines to subsidiary or siding tracks is a considerably more complicated and costly job than the transfer of jointed track.

For this reason some railways are developing the laying of track with so-called "frozen joints"—that is, laid with standard 39-ft. rails but without expansion gaps at the joints. This practice requires carefully-planed rail-ends, and the tightening of fishbolts to a degree sufficient to prevent movement, coupled with as careful attention to anchoring as with welded rail. The Chesapeake & Ohio and Louisville & Nashville are among railways experimenting with this type of track, which makes the changing out of individual rails, when necesary by reason of defects, as simple as with ordinary track. Others are specialising in the use of 39-ft. rails welded in pairs into 78-ft. lengths. It should be added that American rolling mills have been laid out to handle rails of no greater length than 39 ft., which is why this relatively short length is now standard in American rail production.

Opinions differ as to whether or not continuously welded rail should be used on curves. The Toledo, Peoria & Western has laid rails of this type in curves as sharp as 4 deg. (22 ch. radius), and has experienced no difficulties in laying or maintenance, but regards 5 deg. curves (17 ch. radius) as the limit. On the other hand, the Soo Line, which also has laid continuously-welded rails on 4 deg. curves, does not expect any exceptional difficulty in coping with any sharpness of curvature. The Northern Pacific Railroad hitherto has confined its continuously-welded rail-laying to curves of 2 deg. (44 ch. radius) with 115 lb. per yd. rails, but considers that 140 lb. rail is necessary on curves of any shorter radius. General trends show that the laying of continuously-welded rail in the U.S.A. is likely to extend very considerably in the future.

LETTERS TO THE EDITOR

(*The Editor is not responsible for opinions of correspondents*)

Afternoon Service to Scotland

July 4

SIR,—I travel a good deal by the Midland route in the course of my business, and suffer from the lack of an afternoon train to Scotland.

I have twice suggested that the 12.15 p.m. St. Pancras—Bradford should, anyway, in part, including the restaurant car, be extended to Glasgow and Edinburgh, as in prewar years. The London Midland Region has always replied that north of Bradford it did not pay. They have connections, however, at about 7 p.m. from Carlisle to St. Enoch and Waverley; so they only have to run the train from Leeds to Carlisle, divide it there and abolish the connections.

Yours faithfully,

T. C. M. POWELL

The Camber, Nutbourne, Pulborough, Sussex.

Rover Tickets

July 5

SIR,—While one must welcome the introduction of the seven-day "rover" ticket by the London Midland Region, it might, I feel, be worth recalling that this is only a very timid version of a form of ticket which has been available on many railways for years. The administration which has done most to develop this type of travel is the Swiss Federal, and I understand that it is regarded as a very potent factor in retaining traffic for the railways in Switzerland. As far as the holidaymaker is concerned the Swiss "general holiday season ticket" is available for six or 12 days' unlimited travel, but those days need not be continuous, but may be spread over a validity of 15 or 30 days respectively. Thus, in a fortnight's holiday, six days' travel can be spread over two weeks. On the days on which the ticket is not being used as a "rover" ticket, it can be used as an identity card entitling the holder to half-rate tickets.

For the businessman, a general season ticket can be obtained for 12 months (in cash or by instalments), and for one month extendable month by month indefinitely. It can also be issued for two people of the same firm or family to use at will for one-third extra fare.

An even more ingenious device for retaining traffic is the "half-fare card." Having bought one (valid three or 12 months), the holder travels everywhere at half-fare. The more he travels, the better value he gets from his card. The S.F.R. also issue combined general season tickets and half-fare cards on the same basis as the "holiday general season ticket" mentioned above, but for longer periods, such as 12 months, the half-fare including 20 days' validity as a general season ticket.

British Railways might well follow suit.

Yours faithfully,

G. H. HAFTER

49, Church Street, Isleworth, Middlesex

London Midland Region Summer Services

June 17

SIR,—A by-product of the re-casting of the timetable in the Midland Division of the London Midland Region is an improvement in communications between Liverpool and the Midlands. Leaving Liverpool at 3.30 p.m. the traveller now reaches Derby at 5.40 and Leicester at 6.23. Under the timetable just superseded he would have arrived at Derby at 6.41 and Leicester at 7.56. This is as significant as the provision of an alternative route between Manchester and London, though the latter is also important. But one is surprised at the continued paucity of through trains between Liverpool and the Midland line. To restore the former through running via Chinley might be too much to ask for, but it should cause no insuperable difficulties for trains to run into Manchester Central from Liverpool on the Cheshire lines and reverse out on to the former Midland Railway line.

The suppression of the stop formerly made at Crewe by the southbound "Midday Scot" deprives passengers from Chester of an occasional convenience. The last connection of the day from Chester to Euston is the 5.51 p.m. (Holyhead-Birmingham train) due at Crewe at 6.31. The "Midday Scot" was supposed to leave Crewe at 6.28; but if it was a few minutes late Chester passengers could enjoy the comfort of completing the journey in a lightly loaded train, instead of uttering the often vain prayer that the "Comet" would not have so filled at Manchester as to deprive them of the likelihood of a seat. Unfortunately, the improved service on the Midland line offers no relief to the "Comet."

Yours faithfully,

S. D. TEMKIN

28, Upper Berkeley Street, W.1.

THE SCRAP HEAP

Collapsible Cab Roof

On the lines of small ships with hinged funnels, a 150-b.h.p. 18-ton narrow-gauge diesel locomotive in Australia has been provided with a hinged cab roof and sides for use at certain points of low clearance.

Narrow-Gauge Buffet Car

The Festiniog Railway Company has recently converted, in its own shops at Boston Lodge, one of the original 1-ft. 11½-in. gauge bogie coaches to serve as a buffet car. At the same time, a side corridor was cut in the coach as an aid to ticket-issuing at halts. The buffet portion saves staffing refreshment stalls along the line. The coach selected was No. 12, built in 1880, which had two normal-type compartments and a wider compartment with full droplight windows and back-to-back seating arranged longitudinally. The end portion of the coach consisted of a small guard's compartment with single doors, unsuitable for the carriage of bulky articles. The conversion consisted of removing a part of the partition of the compartments and van portion to give a side corridor and access for the guard. The floor has been slightly lowered to give increased headroom in the buffet, and also in the side corridor. The buffet has a display counter with glass front. A further brakevan (No. 11) with accommodation for perambulators is marshalled next to No. 12 and a gangway connection for the guard has been provided between the two vehicles. It is expected that coach No. 20, built by the Gloucester Railway Carriage & Wagon Co. Ltd. in 1879, will shortly return to service. The rebuilding and repainting has been carried out largely by skilled volunteers.

The Festiniog is certainly the railway with the narrowest gauge on which a refreshment car is run. The nearest approach that comes to mind is the Antofagasta (Chili) & Bolivia Railway, which is understood to have operated restaurant cars on its 2-ft. 6-in. gauge section before it was converted to metre gauge.

Unsung Heroes of Dunkirk

The recent unveiling by Queen Elizabeth, the Queen Mother, of the memorial at Dunkirk was the occasion of a letter to *The Daily Telegraph* by Colonel N. McK. Jesper, Chief Police Officer, British Transport Commission, who was Director of Northern Ports, B.E.F., during the evacuation. He drew attention to the work done during the embarkation at Dunkirk and on the beaches by army Movements, Transportation, and Sea Transport officers and their men.

"Their work and duties," he wrote, "were vitally essential to keep the port working so as to ensure that rations and ammunition were sent to the fighting forces as long as possible. When one realises that everyone's ambition was to get out of Dunkirk, it is possible to appreciate the feelings of these men, many of whom stayed there up to 10 days with little rest and the bombing daily getting more intense."

Second to None

(*See our May* 31 *and June* 21 *issues*)

The lady removed the cushion from the carriage seat in her search for her lost hair ornament. There it lay on the floor behind the heater, but there was no hand in the compartment small enough to get through to it nor was there a piece of wire or other suitable material with which to retrieve it. It was not claimed that the ornament had either intrinsic or sentimental value, but the lady liked it. The loss was mentioned to the travelling ticket collector when he came round. In a very short space of time he was back with an improvised appliance he had been able to borrow. It looked like a curtain hook on a short piece of tape, but he proved to be an expert fisherman and with what appeared to be the first cast hooked the ornament. The lady was delighted and all the occupants of the carriage were pleased to see such courtesy and service. The travelling ticket collector vanished almost before he could be thanked—by no means unusual on these occasions. This did not happen abroad but at home on one of our well-known Scottish expresses. —*From a letter received by Mr. H. A. Short, General Manager, British Railways, North Eastern Region.*

Buffet car which has been introduced recently on the narrow-gauge Festiniog Railway. The buffet counter can be seen through the open door

Mad Railwaymen

(*See our July* 12 *issue*)

"You are mad, you British. You are mad, but you are very charming." With these words Mr. Richard Jokel, the Dutch journalist who is President of the Foreign Press Association in London, closed a racy little speech.

Hosts were the Festiniog Railway directors. It was the romantic project to revive this very, very old railway which had caused Mr. Jokel to call all English people in general, and the F.R. directors in particular, mad.

Yet if it was a mad idea in 1951, when the F.R. had been mouldering to decay since 1939, today it is already half realised. Next year its 60-year old steam-engines will be puffing up from Portmadoc to Tan-y-Bwlch amid the tender and lush beauties of that Welsh valley.

In due course they will be back again at Festiniog, where the mountains of Cambrian slate—made of the oldest and finest mud in the world—suggest an inferno drawn by Blake. — *"Peterborough" in "The Daily Telegraph."*

Silent and Still

(*The station clock at Bognor Regis*)

Silent and still; not a movement is seen
Of the clock in the station tower,
Still as the night and its hands upright
Telling the midnight hour.

But twice a day are its two hands true,
At noon and the change of day.
When, when again will they tell mankind
The time as it fleets away?

The clock in the tower may remain still
Telling no time to the nation;
But time passes on; it waits for no man—
Not even nationalisation.

E.E.R.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

GHANA

Diesel-Electric Shunters

The first four of 13 400-b.h.p. diesel-electric shunting locomotives on order for the Ghana Railways have now gone into service. These locomotives are being built by the Birmingham Railway Carriage & Wagon Co. Ltd. with Paxman engines and Crompton Parkinson electrical equipment. They will be followed in the course of the year by the remaining nine which are under construction.

NEW ZEALAND

Tourist Motorcar Service

The Government is to buy six new Cadillac Fleetwood luxury limousines for the Railway Road Services tourist trade for approximately £3,000 each. The Minister of Railways Mr. J. K. McAlpine, making this announcement, stated that the Railways Department had been authorised to replace six cars and that modernisation of the whole fleet of tourist cars would continue progressively. "There are no suitable British cars with the requisite luggage space," he added. "In any case the new Cadillacs will help to earn more dollars than they cost."

New Marshalling Yard at Westfield

A £700,000 project to establish a modern marshalling yard at Westfield, seven miles south of Auckland, was recently approved by the New Zealand Cabinet. The new yard will be more than a mile long, cover about 40 acres, contain more than 10 miles of track, and accommodate up to 1,900 wagons, excluding running lines. The longest sidings will hold trains of 100 wagons. Servicing and turning facilities for locomotives and a small wagon repair depot are included in the scheme.

Reclamation of a considerable area of land from the Manukau Harbour will be necessary, about 500,000 cu. yd. of earthwork being involved. Tenders are being called so that this part of the work can begin at the end of the winter.

Westfield yard will be a common collecting and dispersal point for loaded wagons to and from all goods sheds, yards, private sidings, and wharves in the Auckland area, and is sited and designed to fit in with industrial development, harbour extension works, and the proposed Avondale-Southdown railway. All goods trains to and from the north and south will begin and end their journeys at Westfield. Traffic between Westfield and Auckland area stations will be handled by diesel shunting locomotives of about 450 h.p., tenders for which are now being considered.

VICTORIA

Rejuvenating Suburban Stock

During and after the war, the repainting of suburban cars had deteriorated to less than 120 cars a year. The present accelerated programme of 320 cars a year permits a repaint each three years.

Combined with this is an improvement scheme designed to give greater comfort and convenience to passengers, lower maintenance costs, and discourage vandalism.

New type die-cast window and louvre fittings make it easier for passengers to operate them; they cost less and hence reduce maintenance charges; and, having no scrap value, tend to discourage vandals.

Many items interfering with the cleanliness of cars have been eliminated. In sliding-door cars, Flettner ventilators have been installed and the old type vents filled in. This stops the main cause of dirty ceilings. Backs of hat-racks are being removed, in both sliding and swing-door cars, to enable the car cleaners to do a better job.

Ball-bearing rollers and improved door handles on the sliding-door cars make it much easier for passengers to open and close doors, and they also reduce maintenance work.

Sliding-door cars are also being fitted with strap hangers. Metal grips are used instead of the original bakelite type to offset vandalism. In all cars, woodwork is restored to its natural colour to give a more pleasing interior finish. Outside painting has been simplified.

Other items, designed for the benefit of the train crew, are brighter headlights, windscreen wipers, sun visors, sealed tool boxes, and duplicate guard's Westinghouse brake cocks above the doors of driving compartments.

PERSIA

Simplified Form of A.T.C. Ordered

The Iranian State Railways have placed an order with Integra A.G., Wallisellen, Zürich, for equipping their southern route with a simplified form of automatic train control, known as the approach warning device. This will, as a first step, be fitted at all stations on the line between Teheran and Ahwaz and to the diesel locomotives running thereon. Equipment is to be provided also under the same contract for the additional diesel locomotives which are to replace steam traction entirely on this steeply graded route. The point at which the warning apparatus on the

Driving compartment in rebuilt Victorian Railways electric stock, showing (centre) low air pressure indicator

Interior of reconditioned sliding-door motor coach, with Flettner ventilator outlets in repainted ceiling, strap hangers installed, and plain lamp shades fitted

locomotive is set in action is located at braking distance in rear of the home signal in each case, rendering ordinary distant signals unnecessary. In a few cases, however, where sharp curves make it difficult or impossible to see a home signal at an adequate distance, repeating signals are to be installed.

CANADA

Diesels Successful in Newfoundland

The adoption of diesel power by Canadian National Railways in Newfoundland is reported to have justified all expectations in enabling the 3 ft. 6 in. gauge railway to operate longer trains at faster speeds over the tortuous grades of the island lines. Mr. E. J. Cooke, Manager of the C.N.R., Newfoundland District, has stated one of the newly acquired diesel-electric locomotives has hauled a train of 108 cars—a Newfoundland record. He predicted that trains of 60-70 cars would be "fairly common" in everyday operation.

UNITED STATES

Microwave Transmissions

The increasing use by American railways of the microwave system of beamed radio transmission to establish direct communication between points of their system separated by natural barriers—as, for example, the Santa Fe microwave transmissions across Galveston Bay—is raising questions of such importance concerning the licensing of such transmissions that it is to be the subject of a hearing by the Federal Communications Commission. In opposition to the railways there will be the various telegraph and telephone companies, whose future is likely in some degree to be threatened by any widespread private use of beamed radio.

Microwave transmissions are beamed in a direct line between stations up to 30 miles or so apart, and provide communication in the form of the spoken word, morse or printed telegraph, facsimile reproduction or tevelsion relay work. Transmissions at 890 megacycles and upwards are not affecteld by weather in the same way as ordinary broadcast radio. The same beam can be used by parallel systems transmitting different kinds of information. Private systems are used for remote control of installations of various descriptions and to keep in touch with scattered locations.

The aim of the opponents is to ensure control of microwave activities, so that the ether does not become overcrowded by unregulated private use. The railways will be represented by the Association of American Railroads, but four companies, the Santa Fe, Rock Island, Southern, and Southern Pacific, will appear in their own behalf.

AUSTRIA

Railway Finances Investigation

The Minister of Transport & Electrical Power, Dr. K. Waldbrunner, has appointed a Ministerial Committee of four to investigate the general question of the finances of the Federal Railways. Although of recent years traffic and receipts have grown very considerably the working is still being conducted at a loss, despite numerous modernisation and economy measures. It is pointed out, however, that this situation is due in large part to the heavy burdens laid on the railways, either directly as a consequence of certain legislative requirements or indirectly by pressure brought to bear against any changes by influential social and political interests, resulting in many unremunerative services and stations having to be maintained. Fares are often, for this reason, far below the value given for them and the same applies to some freight rates. There are also heavy pension charges arising from similar influences and which cannot fairly be regarded as a legitimate burden on the present management, charges which ought in fact to form part of national social service funds.

It is thought that, at a lowest estimate, charges to the value of 800 to 900 million schillings per annum are being debited to the railway accounts which ought to appear in other sections of the national finances, creating a false idea of the realities involved and helping to make the railways a pawn in political manœuvres.

EASTERN GERMANY

Re-equipment Programme

The State Railway plans to put into service from 1960, 427 diesel locomotives, 85 of which will be for heavy duties. Construction of steam locomotives is to be discontinued in 1958.

After 1958 all freight stock is to be equipped with automatic couplings, in accordance, it is understood, with standard practice east of the Iron Curtain.

The construction programme provides for 23,000 freight wagons, 230 mainline passenger coaches, 12 express railcars, 42 articulated diesel train sets, and 45 double-deck passenger train sets.

It is intended to double 500 miles of main line from which the second track was removed in 1945 by the Russian authorities.

Publications Received

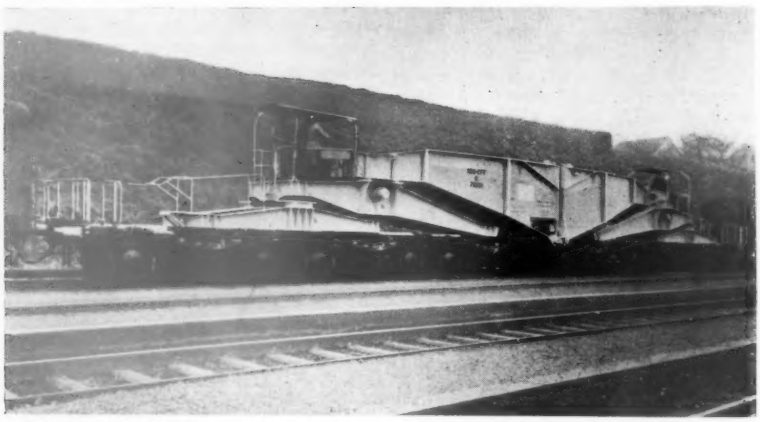
Vereintes Europa auf der Schiene (*The Function of the Rail in a United Europe*): Special issue of *Europa-Verkehr*; published for Dr. E. Frohne, until recently Chairman of the German Federal Railway Directorate, by Otto Elsner Verlagsgesellschaft, Darmstadt; 11½ in. × 8¼ in. 186 pp. Illustrated. No price stated.—This finely printed publication, to which Dr. H. C. Seebohm, German Federal Minister of Transport, and President of the Conference of European Transport Ministers, writes an introduction, contains 24 contributions covering every aspect of modern railway working from the public, technical, administrative, operating, and economic points of view, and has been issued in connection with the putting into service of the "Trans-Europe Expresses," which have given an additional significance to the theme of European unity and common interest in relation to transport by rail. Well-known railway officers as Dr. Frohne, Monsieur Armand, Monsieur de Vos, Mr. den Hollander, Mr. Wichser, and Dr. Dobmaier, are among the many authorities who deal with topics on which they are specially qualified to write, and the work should do much to spread a knowledge of the activities of the International Union of Railways (U.I.C.) and other bodies which are doing so much to help to pool information and other resources, standardise practice and in other ways assist the railways of Europe to adapt themselves to present and future requirements. The articles are in German or French, but each is summarised in the other tongue and also in English.

Festiniog Railway Guide.—The 1957 edition of this guide is a considerable improvement on its predecessor. It has a striking coloured cover showing the double-Fairlie locomotive *Taliesin* hauling a train over the "Cob" and has better illustrations than before. There are now 32 pages—12 more than before, and the present timetable is given, with tables of locomotive stock and coaching stock, at the end of the description of the line. To encourage the public to become "narrow-gauge minded," the guide lists and gives short descriptions of four other such railways in Wales — the Snowdon Mountain Railway, the Talyllyn, the Fairborne Miniature, and the British Railways Vale of Rheidol line. There is a useful map.

Highland Scenery in Map Folders.—The Scottish Region of British Railways has produced a map folder outlining the mountains and lochs, and indicating Prince Charles Edward Stuart's Monument at the head of Loch Shiel, viewed from the observation car and the carriage windows of the train on the Fort William to Mallaig route. An observation car is also attached to the 7.55 a.m. train from Glasgow Buchanan Street to Oban and the 5.15 p.m. return train from Oban, and a brochure is available covering points of interest seen from the carriage window on the whole of this route. A similar publication outlines the route from Edinburgh to Oban.

Swiss Traverser Wagon for Heavy Loads

For transport of large alternator stators and other bulky equipment



Vehicle running light with two halves coupled, showing cabs from which operations are supervised and load traversing effected when required

THE development of heavy engineering has given rise to increasing demands for facilities for the transport of weighty and outsize loads. The Swiss Federal Railways have built over 30 special wagons running on from six to eight axles, able to take consignments of up to 106 *tonnes*. In power station engineering especially these requirements have become particularly onerous and the transport of turbo-alternator stators has come to offer special problems, designers finding themselves increasingly hampered by the restrictions imposed by railway and other transport authorities.

In 1955, Brown, Boveri A.G., of Baden, Switzerland, received an order for a 214,000-kVA. alternator set for the Frimmersdorf power station of the Rhine-Westphalia Power Company, the stator of which was expected to weigh over 200 *tonnes* with a dia. of about 13 ft. As the firm contemplated constructing even heavier equipment in due course it appeared essential to consider designing a vehicle expressly adapted to conveying this class of consignment by rail. Hitherto special road vehicles had had to be used for it. It was not possible, however, to make a special low drop-frame wagon, similar generally to an eight-axled type already in use, as the requirements governing height of load excluded this.

It was decided to build a vehicle carrying the load in suspension in the form of a link between two similar half-vehicles, each of them running on nine pairs of wheels to meet the prescribed axle load limits. At the end of 1955, agreement on the general design was reached and an order placed with the Schweizerische Industrie Gesellschaft (S.I.G.), Neuhausen, and Giovanola Frères of Monthey. In the remarkably short space of 12 months the vehicle seen in the accompanying photographs was ready and was used early this year to convey the generator stator mentioned to its destination in the Rhineland.

Features of Design

The vehicle consists of two halves, each resting on three six-wheel bogies of uniform design and with a wheelbase of about 11 ft.; these halves are coupled directly together when the whole is running light. The bogies stand at 16 ft. 9 in. centre to centre; the two outermost in each case are connected by a girder and platework bridge piece, resting in swivel and ball-type bearings and provided with another such bearing in its centre. In each of these bearings rests one end of a heavier bridge piece of similar general construction, the inner end of which is supported similarly on the centre of the third, or innermost, bogie of each set.

About one-third of the length from the outermost end of each of these second bridge pieces are the heavy bearings for the main nose pieces, which between them carry the intended load, so secured to them as to form a firm continuous member between the two main bearings. These nose pieces are built up of platework and rolled sections, strengthened by diagonal bracing. Welded construction, stress relieved, is used throughout.

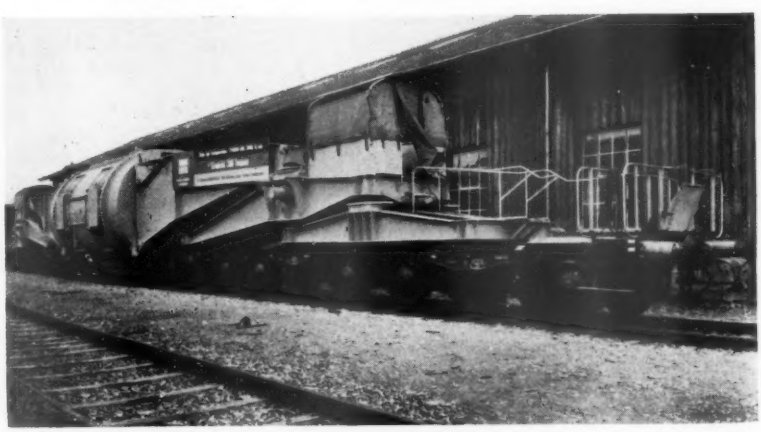
Traverser

The total tare weight is 98 *tonnes*, and loads up to 270 *tonnes* can be carried. To enable a load to be shifted laterally to some extent during transit, should a lineside obstacle require it, the main bearing units can be traversed up to about 14 in. on either side of the centre line by an oil pressure cylinder mechanism under electrical control, actuated by the staff in charge, who travel in the small housings or cabs seen in the photographs, mounted on the inner bridge pieces. Besides the pivot bearings, side bearings, with oil bath lubrication, are provided below the several items.

The bogies, also of all-welded construction, are equipped with the Oerlikon load-regulated brake which, with the aid of a mechanical adjuster, provides four degrees of brake power regulation. Each regulator handle has marked alongside it the values of consignment load which, when reached, necessitate the setting of it to a particular position. Hand braking is also provided.

Pressure for the hydraulic bearing traverser is obtained from a radial type pump driven by a 1-h.p. 220-380 V.

(*Continued on page* 73)



Vehicle ready to leave manufacturers' works in Switzerland, loaded with 208-*tonne alternator stator for power station*

Prototype Saloon Coaches for British Railways

High standard of lighting and insulation: reclining seats in both first and second class vehicles

AMONG the exhibits at the British Railways Modern Railway Travel Exhibition at Battersea on June 28-30 were two saloon coaches built by Cravens Limited under the British Transport Commission scheme to foster new ideas for improvements in the design of railway rolling stock. The coaches had to be built on British Railways standard bogies and underframes but the body design was left entirely to the builders. In the design of the coaches consideration was given to their suitability for forming the basis of the design of future British Railways main line coaching stock and to making them economic to build. The first class coach provides seats for 33 passengers and the second class coach for 52.

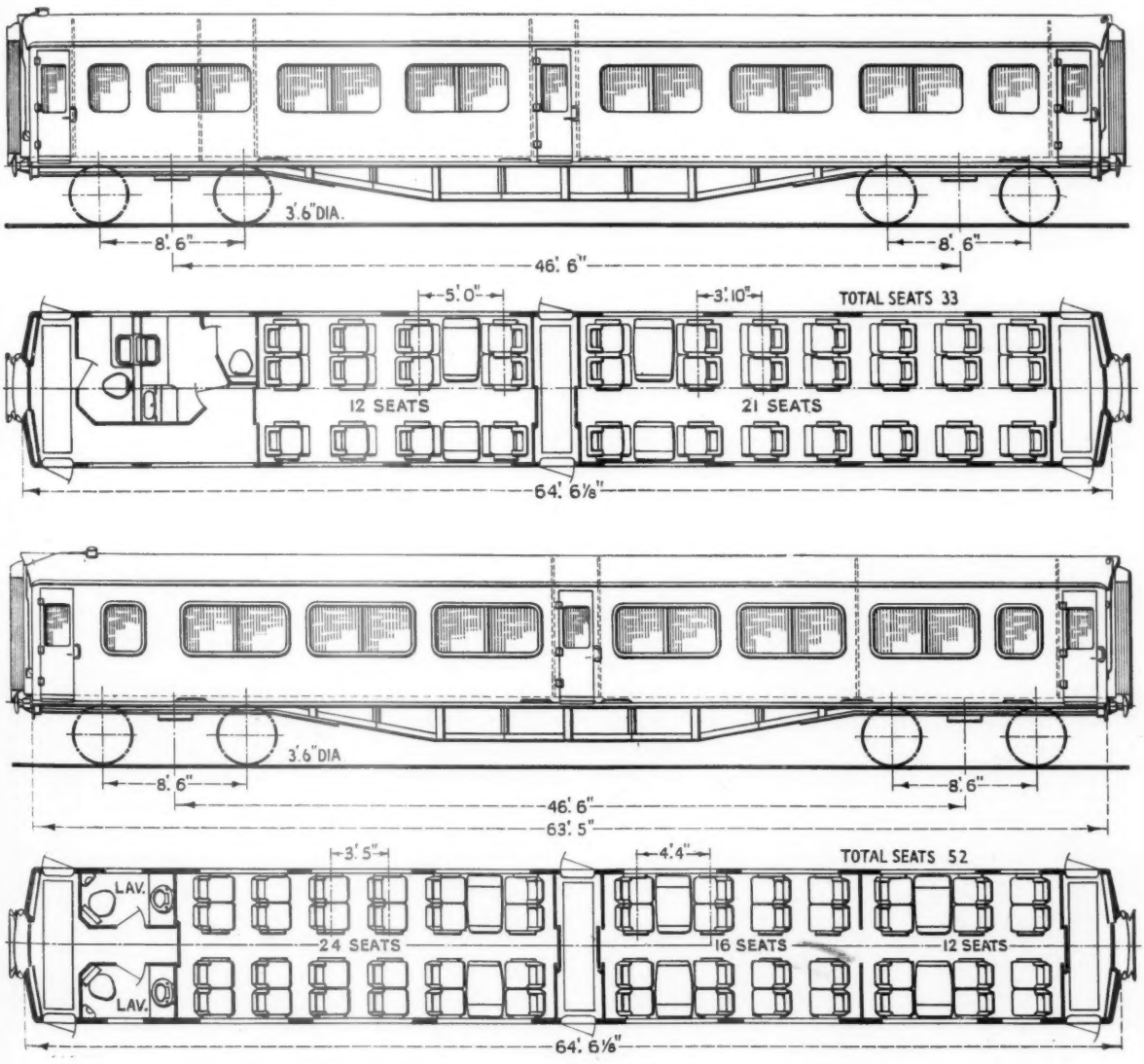
A heating and ventilating unit designed by Thermotank Limited is located in the vestibule ceiling at one end of the first class coach and at both ends of the second class coach. The unit consists of twin centrifugal fans, viscous type filters, and finned tube steam-heater coils. In the first class coach the quantity of air supplied is 22 cu. ft./min. and in the second class coach 27½ cu. ft./min. per person.

The ducting is arranged above the saloon ceilings; air passes through distributors into the compartment and is exhausted through outlets arranged under the seats. During warm weather, when heating is not required, the units supply filtered fresh air, thus providing a fresh, clean atmosphere for the occupants of the coach.

Automatic Temperature Control

Automatic control of the temperature in the saloon during cold weather is provided by a thermostat and a modulating valve regulating the steam supply to each unit.

Although the units have been designed in the first place for coaches hauled by steam locomotives, they can readily be adapted for use with electric or diesel-electric locomotives by substi-



Elevations and plans of first class (top) and second class coaches

Reclining seats in first class coach with occasional table on seat back raised. The slat blinds are lowered at one window

tuting an electric heating element for the steam coil.

The saloon body sides, corridors, and partitions are finished in a specially-designed plastic and the intermediate cross partitions and doors are glazed with clear glass. A railway map of the British Isles is veneered into the body end vestibule panel.

The seat cushions are upholstered in specially woven material. Curtains and carpets are provided in the first class saloons. The second class saloon has blinds to the body side windows and linoleum on the floor. The corridor floors are also covered with linoleum and coir hair mats are fitted into mat wells in the vestibules. The ceilings are of slotted acoustic P.V.C. panels and the continuous bodyside luggage racks are anodised aluminium. A perspex lighting panel is arranged in the centre of the ceiling. Fixed tables are of polished timber with the centre section covered in hide, and the patent folding tables in the backs of the first class seats are plastic-faced and show decorative railway scenes.

The interior décor has been designed in conjunction with Messrs. Farmer & Dark, F./F.R.I.B.A., who were appointed by Cravens as consultant architects. The plastic veneers were by Bakelite Limited with fabrication by Insulation Equipments Limited.

Toilet Compartments

Separate toilet compartments are provided for men and women in the first class coach, the men's toilet having a separate W.C. compartment. Each toilet compartment is fitted with a washbasin built into a cabinet which houses the hot water heater and the service piping. Water-sealed hoppers are provided and a white china urinal complete with its own flushing system is arranged in the men's washroom. Special fluorescent lighting fittings concealed in built-in soffits extend across the top of the mirrors.

The walls of the compartments are covered with a special design of plastic veneer having a light blue ground with a zigzag pattern in white. The flooring in each compartment consists of Carters ceramic tiles laid on top of the plywood floor panel with a plastic coving surround.

The main lighting in the saloons is provided by fluorescent tubes located behind perspex panels arranged longitudinally in the centre of the saloon. Additional lighting is provided in the first class saloon by reading lamps located under the parcel racks. Push buttons are arranged adjacent to the reading lights for calling the attendant.

In the toilets and corridors the British Railways standard tungsten light fitting is provided supplemented by special fluorescent mirror lights. The fluorescent lighting, by J. Stone & Co. Ltd., is of the 220-V. a.c. type with a converter unit fed from the 24/32-V. British Railways standard generator. The generator is the Wolverton WC.125 A. size with cells of 440-A. hr. capacity.

Interior of first class coach showing seating arrangements, parcels racks, and ceiling

Seating in second class coach. One of the glazed cross-partitions can be seen

The body sides, ends and roof of the steel shell are insulated with Roberts sprayed Limpet asbestos 1 in. thick. Additional insulation is provided at the back of the acoustic panels by a blanket of Fibreglass insulation. The passenger compartment floors are constructed of prefabricated panels incorporating a 2-in. thickness of Stramit insulating material supported on anti-vibration pads of $\frac{5}{16}$ in. thick fluted rubber.

The vestibule body end sliding door is also insulated with fibreglass material and all bodyside windows are of the double-glazed type.

In the first class saloon, double-glazed windows are provided which have a special design of slat blind by Venetian Vogue Limited between the two glasses. The blinds are individually controlled by a winding and tilting mechanism located at the waist rail. To prevent condensation, a quantity of activated alumina is arranged in a stainless steel container placed at the bottom of the window frame. All other windows are of the Beclawat breather double-glazed type. The windows fitted in the toilets are of the obscured pattern with the inner glasses painted and fired white.

Reclining Seats

In both classes of vehicle reclining seats are provided. These have cushions and squabs with Dunlopillo fillings and are specially contoured to give maximum comfort. The first class seat has an adjustable pillow of foam rubber and has also a patent folding type of seat-back table which stows away and is flush with the back when not in use. The table is so arranged that when in the horizontal position it is not affected by the reclining movement of the seat back.

The seat covering material was specially woven by Edinburgh Weavers and the seat frames were supplied by G. D. Peters Limited and Pels Limited for first and second class coaches respectively.

Exterior view of second class coach

The coach framing is to British Railways main line coach design with contour to British Railways standard except where modified to accommodate the special rubber glazed window frames and where the body side panels have been extended below the top of the solebar to improve the external appearance of the coaches.

The bogies, underframes, brake equipment, and so on, are to British Railways standard design. The weight of the first class coach is 37¼ tons and that of the second class coach 36¾ tons.

The following is a list of the principal sub-contractors:—

Floor panels, blockboard partitions and panels, and ceiling panels	Insulation Equipments Limited
Bodyside windows ..	Beckett, Laycock & Watkinson Limited Morris Singer & Co. Ltd.
Seat frames	G. D. Peters Limited Pels Limited
Heating and ventilating equipment	Thermotank Limited
Rack light fittings ..	Walters Electrical Co. Ltd.
Luggage racks ..	A. G. Wild & Co. Ltd.
Seat trimming materials	Edinburgh Weavers Limited John Holdsworth & Company Connelly Bros.
Seat fillings	Dunlop Rubber Co. Ltd.
Curtain material ..	Edinburgh Weavers Limited
Blinds	Nicholls, Frayse & Co. Ltd.
Slat blinds	Venetian Vogue Limited
Carpets	T. F. Firth & Sons Ltd.
Linoleum	Linoleum Manufacturing Co. Ltd.
Electrical fittings ..	J. Stone & Co. (Deptford) Ltd.
Toiler compartment sanitary fittings	Twyford Limited Adamsez Limited
Toilet compartment floor tiles	Carter & Co. Ltd.
Asbestos insulation ..	J. W. Roberts Limited
Plastic decorative veneers	Bakelite Limited

Swiss Traverser Wagon for Heavy Loads

(*concluded from page* 70)

three-phase motor. The pumps with control valves, oil level indicator, safety equipment, gauges, etc., are mounted in the cabs. In an emergency hand pumping can, of course, be resorted to. Current is obtained from a 17½-kVA. diesel-generator set carried in a van attached to the vehicle, serving also as a rest and meals room for the staff.

As most travelling has to be done by night six floodlight projectors are provided at each end of the vehicle, fed from this generator, enabling the load and obstacles being approached to be seen clearly and the former moved laterally if necessary. Electric bell communication is provided between the cabs. Total overall length of the vehicle, without load in place, is 110 ft. 4½ in. and it can negotiate curves down to 164 ft. radius.

As the particular service for which the vehicle is primarily intended is not frequently required, the Federal Railways management decided to have three additional drop girder frames made, for use each with two of the bogies, to form three additional heavy load transporters. In addition, by using an extra box container unit, the new vehicle itself can be employed to convey other forms of equipment.

Initial Trip

Arrangements for the first journey, which took from February 15 to 21, 1957, were made between the Swiss and German Federal Railways. The consignment started from Münchenstein in Switzerland and was routed thence by the right bank of the Rhine through Germany to Basle, as the bridge over the Rhine on the line connecting the two main stations there was unable to take so heavy a load. From there the route was via Karlsruhe, Frankfort (Main), Cassel, Hamm and München-Gladbach to Gustorf, for Frimmersdorf, a total distance of 643 miles against about 250 in a direct line, occasioned by the need to avoid local restrictions. Speeds up to 30 m.p.h. were attained, but in many places a walking pace only was permissible. On over 50 occasions it was necessary to move the load off centre by the traverser. To avoid concentration of load on bridges an empty vehicle was marshalled ahead of the special one, which was found to answer all expectations.

A detailed description of this remarkable piece of rolling stock by Herr H. Weber, appeared in the *Schweizerische Bauzeitung* for April 20, 1957.

Repairs to Columns of Station Roof

Successful treatment of fractures at Liverpool Street, Eastern Region

IN a recent routine survey when certain of the cast-iron ornamentation was removed from the splayed tops of the 75-year-old cast-iron columns supporting Liverpool Street Station roof, it was found that four of the columns were cracking at the top. These columns are tubular, with walls about 1 in. thick and the drainage of the roof is accommodated within the columns. A column on platform 10 had fractured from the top rim extending about 18 in. down, indicating a tendency of the casting to splay under the load. The top of a column situated on platforms Nos. 2 and 3 was also defective to an even greater extent. The bursting action on this column had caused a double V-shaped fracture and a V-shaped portion of the column had entirely broken away.

Consideration was given to repairing these columns but the consensus of engineering opinion was that the defective columns would have to be replaced. This would have entailed considerable expense, and presented difficulties in the shape of dislocation of the station working whilst the old columns were being removed and replaced. Metalock (Britain) Limited was consulted with a view to effecting in situ repairs, and the work was put in hand on these lines.

The necessary scaffolding and staging were erected by the railway engineering staff, and the loose V-piece above platforms 2-3 clamped into position so that the top of the column was left in the relieved state and no new stresses were induced.

On the casting with the smaller fracture on platform 10, the metal was marked out as if stitches were to be inserted across the fracture. "Stitches" is an appropriate term, for metal stitches were inserted to hold the two parts together. Along the line of each stitch were drilled rows of holes of a pre-determined number and depth, and with a gun-tool a narrow channel was cut between the adjacent holes in each stitch, the width of the channel being considerably less than the diameter of the hole.

Keys

Into each cavity was driven a succession of Metalock keys, each key being made from a specially-prepared, highly-ductile alloy of great tensile strength with a temperature coefficient similar to that of the casting, and shaped to fit the cavity exactly. A number of keys was driven in by pneumatic hammer, one on top of the other in each cavity, and subsequently peened so that the keys were practically part and parcel of the two parts of the metal being held together.

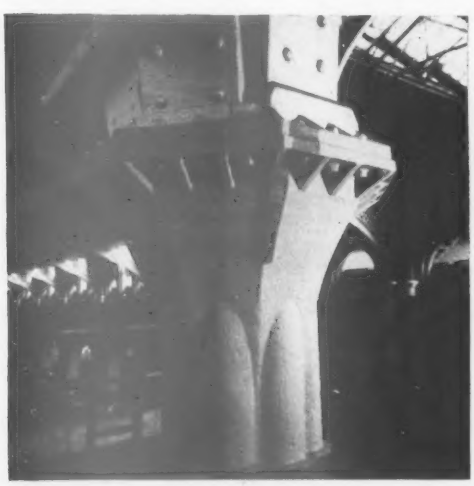
Insertion of Studs

After the keys had been inserted, a line of tangentially interconnected blind holes was drilled along the entire length of the actual fracture, on the line of intersection between the two "arms" of casting Metalocked together by the transverse keys. The holes were tapped, studs screwed into the holes and subsequently peened, the job being finished with a pneumatic grinder. The process of inserting studs along the line of fracture ensures that the casting is completely re-integrated, and is a part of the Metalock process known as Metalacing.

The fracture on the other column on platforms 2-3 was of greater magnitude, but a similar process of repair was carried out, with the exception of the Metalacing process. This was impracticable owing to the width of the fracture, the edges of the broken portion having wasted, leaving a gap which had to be bridged by the repair. This problem was solved by the use of longer metalock keys, no attempt being made to close the gap, as this would have meant inducing undue stresses in the column. By bridging the gap the casting was left in a relieved, and consequently stronger state.

The repair work was completed by two operators in 11 days.

B.T.C. FILMSTRIP ON SOUTHAMPTON DOCKS.—A new filmstrip entitled "Berth 102 Southampton Docks" has just been produced by the British Transport Commission. Berth 102 is the second of the new reception terminals for passengers and cargo built at Southampton since the end of the war. The filmstrip, in conjunction with accompanying lecture notes, gives a brief outline of the growth of Southampton to its present position as Britain's premier ocean passenger port and explains how increasing trade made necessary the erection of the new building. It shows phases in its construction up to the date of its opening in 1956 and describes its main features. It also shows how passengers and cargo are handled on the arrival of a liner. This is the latest of a series of 66 filmstrips produced by the Commission, particulars of which are given in a catalogue which can be obtained upon application to the Films Officer, B.T.C., Savile Row, London, W.1. They are available for free loan to educational authorities, cultural organisations, clubs, societies, institutes, industrial, and commercial associations and companies.



The top of the column on No. 10 platform of Liverpool Street Station, after repair

The column on platforms 2-3, showing the "V" piece re-inserted and Metalocked into position, awaiting the final finish

Servicing of Diesels in New Zealand

Four separate working levels on inspection tracks

Parnell depot from the south, showing large ventilators containing suction fans above the two running inspection tracks

WITH the decision by the New Zealand Government Railways management to allocate twin-unit railcars, 35 of which were being built by the Drewry Car Co. Ltd., to Auckland, to work fast long-distance services, planning of servicing facilities was put in hand, and a site for diesel maintenance shops was selected in Parnell Gully, near Auckland Station. Plans were drawn up for a four-track depot, 160 ft. by 80 ft., with a workshop and store, 240 ft. by 25 ft., attached. Provision was also made for a separate building 50 ft. by 25 ft. for staff amenities. It was later decided to order 30 diesel-electric locomotives from North America for main-line services between Auckland and Paekakariki, a distance of some 400 miles, and it was proposed to extend the depot under construction by 60 ft.

Various difficulties were encountered. Piles were used for the support of the main frame, and jacking slabs were introduced under the main pits, to raise the floor by small amounts later if found necessary. Another major factor was the narrow width of the site, a restriction which was accepted because of the light running involved with a depot at the nearest alternative site some five miles away at Glen Innes. As a result, spacing of the tracks in the depot was arranged at a minimum.

Depot Layout

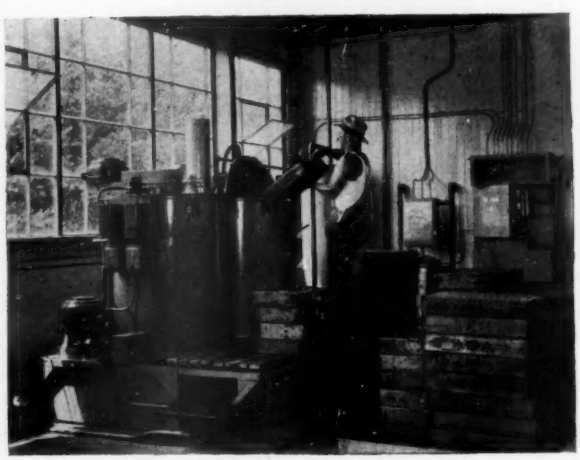
Four tracks pass right through the building, locomotives being admitted through portal doors—vertical steel shutter doors which open from the centre and telescope into a small space in the side walls. Two tracks are used for routine inspection, and two for heavier repairs.

Four entirely separate working levels are provided on the inspection tracks. In addition to normal rail level on which the locomotives stand, an elevated working platform is provided 4 ft. 5 in. above rail level, alongside, and between each track, to facilitate access to the engine compartments and the cab.

Beneath these elevated platforms the floor is depressed to 3 ft. 6 in. below rail level for the convenience of staff working on the wheels, bogies, and undergear of locomotives and railcars. Finally, there is the pit floor 4 ft. below rail level.

The track rails are carried on concrete columns, and the elevated platforms are reached from ramps at one end, and steps at the other. For illumination of the various levels, bulkhead lights are attached below the rails, and beneath the working platforms, also above windows, and sus-

"Da" class locomotives under routine inspection



Part of fitting shop, showing layout of filter cleaning plant

pended from the roof; there is also a liberal amount of natural lighting.

Ventilation of the running inspection tracks is by a forced ventilation which has proved very successful. All heavier than air diesel fumes are sucked out and dispensed through troughs installed above the full length of each inspection track. Normal roof ventilators are provided over the repair and the workshop. In the heavy repair bay, the two tracks are each provided with a wheel drop-pit in addition to the normal pits. Two 15-ton capacity overhead cranes run the length of the building; a wheel lathe is to be installed.

Repair Tracks

Alongside the repair tracks, the fitting shop, including the store, extends some 360 ft., and is fully equipped with new machinery. Included is a Wolf valve grinder, a test rack for Westinghouse brake equipment, and a filter cleaning plant. Arrangements are made for this shop to be serviced by rail trollies from the repair shop, and by overhead monorail with travelling electric pulley block of two tons capacity. A fuel injection pressure tester is situated at one end of the fitting shop, and equipment includes a Hartridge fuel pump rack, and a Triscop optical needle grinder; the room is being pressurised to avoid dust. Heating of the fitting shop and neighbouring rooms is provided by unit heaters of the forced draught type suspended from the roof; in the summer the heaters are used to circulate the air and keep the place cool.

Servicing

Early in 1957 the locomotives receiving routine checks each day were a maximum of three, but servicing is being provided for a total of 50 main-line diesel-electric locomotives, six Drewry or Hunslet diesel shunters, and six Drewry twin-unit railcars. Routine checks were being made after 4,000 to 5,000 miles running, depending on the class of locomotive, and each 2,000 miles in the case of railcars; diesel locomotives averaging 1,500 miles a week visit the depot about once every three weeks. Certain diesel locomotives from the Frankton and Taumarunui districts were also being serviced.

At 30,000 miles, and again at 60,000 miles in the case of the "Da" class locomotives, more intensive checks are made, including a complete oil change. To facilitate the work, a bulk lubrication oil installation is being provided, whereby the used and fresh oil will be pumped from and to the locomotives on the inspection tracks. Tanks will be located near the store at the front of the depot.

The unit replacement method is being used, which ensures that railcars or locomotives are out of service as little as possible. Spares include bogies, wheels and axles and other equipment. Wheels are removed for turning after approximately 70,000 miles, and pending the installation of a wheel lathe, tyre turning is done at Otahuhu about eight miles away. The 10 diesel-electric locomotives being supplied this year by the Clyde Engineering Co. Pty. Ltd., Clyde, New South Wales, will also be serviced at the Parnell depot.

C.I.E. Pre-stressed Concrete Sleeper Manufacture

Production of 10,000-15,000 *sleepers a year at Inchicore Works*

CORAS Iompair Eireann is conducting experimental work on the manufacture and handling of pre-stressed concrete sleepers and on rail fastenings. The present policy is to manufacture 10,000-15,000 sleepers a year, using a variety of tensioning rods and rail fastenings. Production commenced in 1955 at the C.I.E. works at Inchicore, Dublin. The sleepers are being made according to the Karrig process by arrangement with Dyckerhoff & Widmann of Munich.

The sleepers are made of high grade concrete with about 630 lb. of cement per cu. yd. They contain two bitumen-coated steel bars which are post-tensioned when concrete has hardened.

Four steel moulds are used in the manufacturing process for an output of 120 sleepers a day. The steel reinforcing bars and the wooden plugs for holding the rail fastenings are fixed in place in the moulds. Two moulds are then placed on a vibrating table and the concrete is added. The moulds are vibrated at 9,000 vibrations per minute and further vibration is applied to the top of the concrete by means of a portable vibrator. A pair of sleepers are fully compacted in about four minutes after which they are demoulded on to flat steel pallets and are taken away for steam-curing.

Top vibrator in position after concrete has been placed in the mould

The sleepers are steam-cured after manufacture, and the concrete develops a compressive strength of 6,000 lb. per sq. in. by the morning after the day of manufacture. The initial post-tension of 8·7 tons per bar is applied to the reinforcing bars on the day after manufacture. The bars are tensioned by means of a hydraulic jack. The bars are extended by the jack and when the correct extension has been reached, the nut is run up against the anchor block. Final stressing of 13 tons per bar is applied when the sleepers are six weeks old. The end anchorages of the stressing bars are covered with cement mortar after final stressing has been done.

The steel used for reinforcing the bars is special creep-resisting steel of 35 tons per sq. in. yield point, and 54 tons per sq. in. breaking strength.

The chief items of equipment for an output of 120 sleepers per day, by 16 men, are a vibrating table, four moulds, 130 pallets, transporter gear, and a steam boiler.

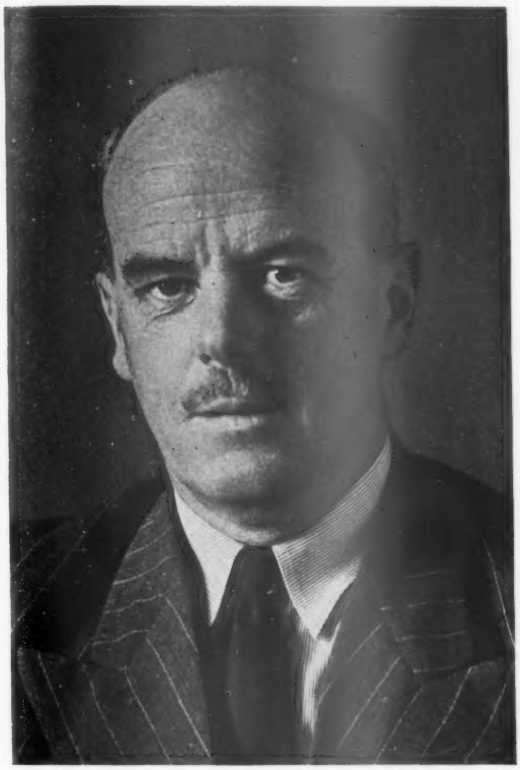
Corrugated beech plugs are used for rail fastenings. Experiments are being made with various elastic fastenings.

RAILWAY NEWS SECTION

PERSONAL

Messrs. L. N. Mathur, Chief Electrical Engineer, Central Railway, India; S. C. B. Mazumdar, Chief Electrical Engineer, Western Railway, India; and Karnail Singh, Member (Engineering), Railway Board, have arrived in London to study the working of the a.c. system of railway electrification in the United Kingdom, France, Western Germany and Belgium.

M. Paul Durand, President of the Club Inter-Continentale de Transport, Paris, was entertained at the Transportation Club, London, on the evening of July 10, when members of Council and members of the club held a " Vin d'honneur " to him.



Mr. W. Urquhart
Acting General Manager,
East African Railways & Harbours

Professor Dr. H. M. Oeftering
Appointed Chairman,
German Federal Railway

Mr. W. Urquhart, O.B.E., B.Sc., M.I.C.E., Deputy General Manager, East African Railways & Harbours, will act as General Manager until Mr. J. R. Farquharson, whose appointment as General Manager was recorded in our March 15 issue, arrives next October. Mr. Urquhart joined the Uganda Railway in 1926 as Assistant Engineer, and, in 1933, became Engineer-in-Charge at Mombasa Port. He was promoted to District Engineer in 1942, and became a Senior District Engineer in 1943. He became Assistant Chief Engineer in 1946 and retained this post on the amalgamation of the Kenya & Uganda Railways and the Tanganyika Railways in 1948. He acted as Chief Engineer for lengthy periods from 1946 until his appointment as Chief Engineer, East African Railways & Harbours in April, 1952. Mr. Urquhart was appointed Deputy General Manager in 1954.

Mr. L. J. Hamblin, Industrial Relations & Welfare Officer, British Transport Commission, has been appointed Secretary of the British Railways Productivity Council. He succeeds Mr. D. Robertson, Establishment & Staff Officer, British Transport Commission.

Mr. J. S. P. Phillips, Assistant Works Manager, Enugu Locomotive, Carriage & Wagon Works, Nigeria Railway, has been promoted to Works Manager.

Professor Dr. Heinz Maria Oeftering, who, as recorded in our May 31 issue, has been appointed Chairman of the Board of Directorate of the German Federal Railway, was born at Munich on August 31, 1903. He studied jurisprudence and state sciences at Munich and Heidelberg, graduating from Munich university in 1929. After short term employment in the Bavarian provincial administration he went to the State Finance authority in 1930. In 1932, he was called as scientific expert, to Munich. In 1935 he was transferred to the German State Finance Ministry after appointment as Regierungsrat. His promotion as Ober-Regierungsrat followed in 1940 and in his new capacity he was engaged on general finance and loan matters. From 1943 he served in the German Army. After the war Dr. Oeftering resumed his work in the finance administration. In 1945 he became President in the Hesse-Palatina Accounting Chamber, in 1947, President of Rhineland-Palatina Province Central Accounting office. In 1949 he entered the German Federal Finance Ministry as Ministerialdirektor, subsequently becoming head of the General Finance Policy & Public Finance Economy Department. At the same time, and in connection with that appointment, Dr. Oeftering was Chairman of the Supervisory Councils of the Wolfsburg Volkswagenwerk and Howaldts-Werke A.G., Kiel, and Deputy Chairman of the Supervisory Councils of Hamburg Howaldts-Werke A.G., Vereinigte Industrie Unternehmen A.G., and various other undertakings. In February, 1957, he was appointed President of the Central Accounting Office of the Federal Republic. His present appointment as Chairman of the Board of Directorate of the German Federal Railway is effective from May 13, 1957.

Mr. A. S. Mead, Assistant District Passenger Manager, Liverpool, London Midland Region, British Railways, has been appointed Assistant District Passenger Manager, Manchester.

Mr. T. R. V. Bolland, Assistant District Traffic Superintendent, Woking, Southern Region, British Railways, has been appointed Assistant to Chief Operating Superintendent, Waterloo, in succession to Mr. J. H. Brown, who retires on August 31 this year.

Dipl. Ing. Hans Geitmann, who, as recorded in our May 31 issue, has been appointed a Member of the Board of Directorate of the German Federal Railway, was born in 1902 at Magdeburg, and was educated at the Technical colleges of Hanover and Stuttgart where he studied engineering. He began his railway career in the German State Railway divisional management at Oppeln. In 1934 he was transferred to Königsberg and appointed Reichsbahnrat. From 1935 to 1938 he was attached to the railway department of the German Ministry of Transport at Berlin, and later became head of the Essen District Engineering & Operating Superintendent's Office. In 1947 he resumed work with the State Railway, with the Göttingen Reichsbahn-Zentralamt, and was later appointed President of the Nuremburg Divisional Management, the position he now leaves.

Dipl. Ing. H. Geitmann
Appointed Member of the Board, German Federal Railway

Dr. K. Koch
Appointed Member of the Board, German Federal Railway

The following redesignations are announced by London Midland Region, British Railways:—

Mr. George Dow, Assistant Commercial Manager, to be redesignated Commercial Officer, Euston.

Mr. S. H. Gould, Assistant Operating Superintendent, to be redesignated Operating Officer, Euston.

Mr. E. P. Hart has been appointed by British Railways as general agent for Scandinavia, located in Stockholm.

We regret to record the death, at the age of 75, of Mr. Donald Corbet Fletcher, Locomotive Superintendent at Leeds for the West Riding District of the London & North Eastern Railway Company from 1932 until his retirement in 1947. He was a past chairman of the North-Eastern Centre of the Institution of Locomotive Engineers.

Mr. H. W. Fulton, formerly Managing Director of Albion Motors, Glasgow, has been appointed an Executive Director of the North British Locomotive Co. Ltd., Glasgow. He will be in control of the manufacture of all North British/M.A.N. diesel engines.

Mr. E. W. I. Arkle has been appointed a director of Ribble Motor Services Limited. Mr. E. S. Hunt has retired from the Board.

Mr. S. Bollon, Assistant Publicity Officer in the Department of the Public Relations Adviser, British Transport Commission, has been re-designated Publicity Officer, and Mr. W. C. Brudenell, Publications Assistant, has been re-designated Publications Officer.

Mr. H. J. Thompson, Inclusive Traffic Manager of Thos. Cook & Son, Ltd., has been elected Chairman of the Creative Tourist Agents' Conference in succession to Mr. Charles Holt, General Manager of Thos. Cook & Son, Ltd.

Mr. W. C. Kinder, Chief Engineer of Stothert & Pitt Limited, is retiring on August 31, and will be succeeded by Mr. T. E. R. Torrance. The company has established a new research and development department under the control of Mr. N. E. Kerridge.

Mr. Lewis G. Whyte has been co-opted to the Board of Associated Commercial Vehicles.

Mr. F. A. Benger, Chief of Motive Power & Rolling Stock, Canadian Pacific Railway, retires at the end of July after more than 46 years service.

Dr. Karl Koch, who, as recorded in our May 31 issue, has been appointed a Member of the Board of Directorate of the German Federal Railway, was born in 1898 at Marburg (Lahn) and educated at Kassel. He started his railway career in the Kassel State Railway workshop, and for two years worked as a fireman. In 1933 he was dismissed for political reasons. He resumed his railway service in 1945, and was later appointed a senior official in the Kassel Divisional Management. In 1948 he was appointed as a leading official in the Bizonal Railway head office, where he remained until he was appointed to his present position.

Mr. J. H. Rivers has retired from active service with Craven Brothers (Manchester) Limited. For 25 years he has been Chief Designer & Technical Director. Mr. Rivers will maintain contact with the company in a consultative capacity.

The following appointments have been announced by British Insulated Callender's Cables Limited: Mr. C. R. Bryant to be manager of the Manchester Office, Mr. F. L. Johnson to be manager of the Blackburn Office, and Mr. T. Noblett to be manager of the Preston Office.

Mr. H. W. Few

Appointed Traffic Manager, Liverpool Street, Eastern Region

Mr. W. A. G. Suddaby

Appointed Traffic Manager, Cambridge, Eastern Region

Mr. E. Dalton

Appointed Assistant to General Manager (General), York, N.E. Region

Mr. H. W. Few, Acting Assistant Operating Superintendent, Eastern Region, British Railways, who, as recorded in our March 8 issue, has been appointed Traffic Manager, Liverpool Street, entered the service of the Great Eastern Railway in 1922 and was awarded a Traffic Apprenticeship in 1928. After three years training in the North Eastern Area of the former L.N.E.R. he was appointed Assistant Yardmaster, Whitemoor and received subsequently appointments as Assistant Yardmaster, Hull, Yardmaster and Locomotive Shedmaster at Percy Main, and Chief Trains Clerk and Chief Controller at Cambridge. He became Assistant District Superintendent, Kings Cross in 1940, and was appointed Assistant to Superintendent (Eastern Section) of the Southern Area of the L.N.E.R. in 1943, two years later becoming Trains Assistant to Superintendent. In 1948, he was appointed District Superintendent, Stratford, and since January, 1956, he has been Acting Assistant Operating Superintendent of the Eastern Region.

The following members of the staff of the Chief Civil Engineer's Department, Western Region, British Railways, have been elected as Associate Members of the Institution of Civil Engineers:

Mr. P. E. W. Crowter, Technical Assistant, Chief Civil Engineer's Office, Western Region, Paddington.

Mr. V. E. Yorath, Assistant to District Engineer, District Engineer's Office, Western Region, Plymouth.

Mr. J. G. Walden, Engineering Assistant, District Engineer's Office, Western Region, Bristol.

Mr. A. G. Springsguth, B.Sc. (Hons.), Senior Engineering Assistant, Chief Civil Engineer's Office, Western Region, Paddington.

Mr. P. Harvey, Senior Engineering Assistant, District Engineer's Office, Western Region, Wolverhampton.

Mr. W. A. G. Suddaby, District Operating Superintendent, Stratford, who, as recorded in our March 8, issue, has been appointed Traffic Manager, Cambridge, Eastern Region, British Railways, entered the service of the London Midland & Scottish Railway at Watford in April, 1928, and three years later was appointed a Traffic Apprentice. In March, 1935, he was temporarily loaned for duty with a Special Committee on Terminal Costs at Euston and in November, 1936, he went to the United States for training with the New York Central Railway Company. He returned to the District Superintendent's Office, Derby, in 1937, and subsequently held appointments as Assistant District Controller at Leicester and Nuneaton. After the war he returned to duty as Extra Assistant District Operating Manager, Leeds, becoming Assistant District Operating Manager, Leeds, in August, 1946. He was subsequently appointed Assistant District Operating Superintendent, Rotherham, in 1948, and District Operating Superintendent, Fenchurch Street, Eastern Region, two years later. In 1952, Mr. Suddaby was appointed District Operating Superintendent (Eastern Area) Manchester, London Road, and in May, 1956, District Operating Superintendent, Stratford.

Mr. Roger Thrupp has joined the Société Internationale des Applications "Isothermos," as technical adviser, and is working from the offices of G. Stephenson & Co. Ltd., 13, Victoria Street, London, S.W.1.

Mr. J. S. Webster has been appointed Joint Managing Director of the Sheffield Twist Drill & Steel Co. Ltd. Mr. C. P. Morley has been appointed Works Manager of the Summerfield Street Works, and Mr. G. Orwin, Works Manager of the Solferino Street Works.

Mr. W. T. Gill and Mr. W. A. Robotham have been appointed Chairman and Managing Director respectively of Sentinel (Shrewsbury) Limited, in succession to Mr. J. T. Rymer who has resigned from the Board to facilitate the integration of Sentinel resources with the Rolls-Royce Group.

Mr. E. Dalton, Assistant District Operating Superintendent, Darlington, who, as recorded in our July 5 issue, has been appointed Assistant to the General Manager (General), York, North Eastern Region, British Railways, entered the service of the London & North Eastern Railway Company in 1925 at Cherry Burton Station. After experience at several stations in the Hull and York districts he was transferred to the Hull & Netherlands Steamship Company. In 1934 he was appointed a Traffic Apprentice and on completion of his training was appointed Chief Passenger Trains Clerk, Glasgow District. During the war he served with No. 3 Docks Group, Royal Engineers, being demobilised with the rank of Major. Mr. Dalton was appointed in 1951 to be District Traffic Superintendent, Government Railways, Nigeria, and on his return after two years, was appointed Yard Master, Hull. In August, 1955, he was appointed to the position of Assistant District Operating Superintendent, Darlington, the position he now leaves.

Transport Users' Consultative Committee, North Eastern Area

The following have been appointed members of the new Transport Users' Consultative Committee for the North Eastern Area until May 31, 1960:—

Chairman

Mr. J. R. Ropner.

Members

(Representing Agriculture): Councillor R. H. Bulmer.

(Representing Industry): Messrs. K. Harper, A. R. B. Polson, W. V. Golding, G. Clark.*

(Representing Commerce): Dr. H. E. North,* Alderman J. Gray.

(Representing Labour): Messrs. R. Stanley, J. Bell.*

(Representing Local Authorities): Co. Alderman D. Dawson, Co. Councillor T. Willis,* Councillor C. J. Tremewan,* Alderman J. A. Hutchison.*

(Representing the British Transport Commission): Messrs. A. R. Dunbar,* A. T. Evans.

(Additional Member): Alderman E. E. Brennan, J.P.

Secretary Mr. F. L. Hick.

* Indicates a new member

Three further appointments have still to be made, two to represent agriculture and shipping, respectively, and one additional member.

Transport Users' Consultative Committee, North Western Area

Sir Patrick G. Hamilton has been appointed Chairman of the new Transport

Users' Consultative Committee for the North Western Area in place of Sir Walter Shepherd. The other members of the new committee are as follow :—

(Representing Agriculture): Messrs. J. Heyes, M. Raven.

(Representing Industry): Messrs. W. D. Broadbent, S. J. Morrison,* J. T. Moss, G. W. Harker.*

(Representing Commerce): Messrs. H. W. Smail, P. T. Watson, F. Abbotts.

(Representing Shipping): Mr. A. N. Hunt.

(Representing Labour): Miss L. Hodson, Mr. M. J. Newton.

(Representing Local Authorities): Co. Alderman W. Ellison, Co. Alderman H. Howard Robinson,* Councillor D. D. Williams, Councillor C. S. McRonald,* Alderman H. H. Baird.*

(Representing the British Transport Commission:) Messrs. E. W. Arkle, W. E. Macve.

(Additional Members): Alderman E. Porter, Mrs. M. McMillan.

Secretary Mr. C. Dove.

* Indicates a new member

Mr. Bernard Dunslay has retired after nearly 44 years with the Dunlop Rubber Co. Ltd. For the past 22 years he was manager of the overseas technical liaison division.

The summer meeting of the Central Transport Consultative Committee was held at the Headquarters of British Railways, North Eastern Region, at York on July 9. The accompanying illustration shows (left to right): Messrs. A. Maclean, representing Local Authorities; M. A. Cameron, representing B.T.C. (Principal Officer) (Administration); Lord Rusholme, representing B.T.C. (Member); Lord Coleraine (Chairman); Mr. J. C. Chambers (Secretary); Miss Monk (shorthand typist); Messrs. A. G. Marsden and S. C. Rowell, representing Commerce & Industry; Major C. E. Pym, representing Local Authorities; Mr. R. H. E. Thomas, representing Commerce & Industry; Major W. H. Powell, representing Local Authorities; Sir John Banks, representing Minister of Transport (Additional Member); Mr. C. E. Jordan, representing Commerce & Industry; Major J. R. H. Harley, representing Local Authorities; Mr. A. G. Wright, representing Agriculture; Sir James Collins, representing Local Authorities; Sir William Lawther, and Sir Luke Fawcett, representing Labour; and Lord Rochdale, representing Commerce & Industry.

TRANSPORT USERS' CONSULTATIVE COMMITTEE, EAST MIDLAND AREA

The following have been appointed members of the new Transport Users' Consultative Committee for the East Midland Area until May 31, 1959:—

Chairman

Professor R. Peers.

Members

(Representing Agriculture): Colonel R. Vaughan-Williams, Mr. H. J. Wild.

(Representing Industry): Messrs. W. L. Marriott, L. A. Knight,* J. H. Criddle, C. F. Berridge.

(Representing Commerce): Messrs. L. Walker, S. French.*

(Representing Shipping): Mr. W. F. Knowles.

(Representing Labour): Councillors G. E. Dearing, B. Sharpe.

(Representing Local Authorities): Co. Alderman W. W. Williamson, Co. Alderman N. Gratton, Co. Councillor H. G. Nightingale,* Councillor S. W. Bridges, Alderman A. L. Chown.

(Representing the British Transport Commission): Messrs. C. N. Christensen, G. Dow.*

(Additional Member): Mrs. D. M. Windey.

Secretary

Mr. S. W. Walton.

* Indicates a new member

Mr. F. B. McPherson, General Manager of the Glacier Metal Company's Kilmarnock factory, has been elected an additional director of the company.

Mr. M. Seaman has moved from the Board of British Oxygen Engineering Limited to the Board of British Oxygen Gases Limited, where he will be director responsible for equipment manufacture.

Mr. L. B. George, Assistant Chief of Motive Power, Canadian Pacific Railway, has been appointed Chief of Motive Power & Rolling Stock in succession to Mr. F. A. Benger, whose retirement is recorded on page 78.

Ticket Issuing Machines

In the course of the last few years British Railways have been paying considerable attention to the design of ticket offices and to equipment intended to speed up the issue of tickets. One such machine, the Ultimatic, has now been adopted by all Regions of British Railways and by London Transport.

This machine, 650 of which are or shortly will be in use, is manually operated and contains five vertical ticket units, in each of which 1,200 pre-printed tickets, folded in concertina form, can be held. A dating mechanism at the top can be set for all five units simultaneously. A slot is provided for inserting a card to identify each category of ticket to be issued.

Used to cope with business travel, excursions, races and sports crowds, and other types of peak period traffic, the Ultimatic usually serves a double purpose. Loaded in the mornings with tickets for the business traveller, they are refilled, as the rush diminishes, with other types of tickets and then used for the busiest types of routine work, excursions, and sports events.

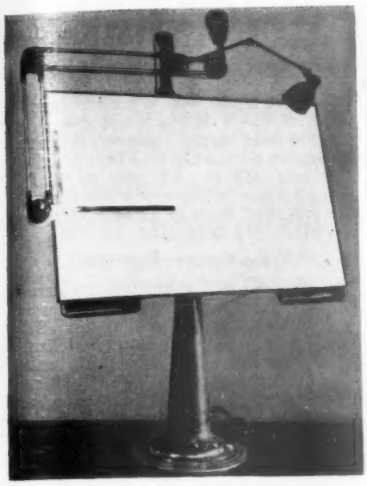
The majority of ticket offices have only one machine, but large junction and termini stations may have many more. There are, for example, 20 machines in use at Victoria Station, Southern Region. The recently-opened ticket office at Glasgow Central has four, and at Wimbledon, Southern Region, there are seven machines.

The Ultimatic, which is manufactured by the Bell Punch Co. Ltd., was illustrated in our issue of September 23, 1955.

B.R.S. IN MINIATURE AT SCHOOLBOYS' EXHIBITION.—The main feature of the British Road Services stand at the Schoolboys' Own Exhibition which opens at the Horticultural Hall, London, on December 31, takes the form of a model panoramic scene. Running through this are two roads along which move scale models of a variety of vehicles in daily use by B.R.S. The vehicles represented include those used on general haulage, parcels/smalls, household removals, heavy haulage, and contract hire services.

Central Transport Consultative Committee summer meeting at York

NEW EQUIPMENT AND PROCESSES



Versatile Drawing Stand

THE President drawing stand incorporates a hydraulic lifting arrangement for ease of control. Saving in space is through the vertical design, and higher drawing output because of ease of handling are claimed to result in drawing offices equipped with these units.

Three control levers operate the stand into any position. Raising and lowering of the board is made rapidly by the foot-pump pedal, easily reached in whatever position. The stand can be turned through 360 deg. and is locked by a small, double foot-pedal. The board can be tilted from vertical to horizontal by the hand-lever, and also locked in any position. The stand need not be screwed to the floor, and is light enough to be easily moved when required.

Because of the form of construction, which incorporates a patented cross-type frame on which the board is screwed, the board with drafting machine is completely balanced and it can be easily adjusted.

Approximate particulars are: size of board, 60 by 40 in.: minimum height of lower edge of board, 20 in.; lift, 23 in.; dia. of base ring, 23 in.; weight of unit including board, 220 lb.

Details, including price and delivery, can be obtained from the distributors in this country, M.B.C. (Office Systems) Limited, 31, Crouch Street, Colchester, Essex.

Rail and Flange Lubricant

A hydrous silica based grease, to be used with automatic rail and flange lubricators, and also buffer faces, is now being produced in this country. The product, known as CRG, was developed specially for railway purposes and has been tested in Western Australia over the last few years, where excellent results in all weathers are stated to have been obtained.

These greasers differ fundamentally from conventional soap-based products in that they have no melting point and are unaffected by water and steam. Chemical additives to give anti-oxidant, lubricity, and extreme pressure properties are incorporated, besides molybdenum disulphide of sub-micron size. The bonding and operating efficiency of this last named substance is said to be inversely proportional to its particle size.

Additionally, it is possible to obtain a greater surface coverage for a lower concentration of the additive.

Advantages claimed for the use of this grease are that, having no melting point it does not run off rails nor thicken noticeably in cold weather; also, being insoluble in water, it does not wash off the rail.

Its short tack causes it to cling to the inside of the rail without creeping on to the rail surface to cause wheel slip with consequent side wear on rails and wheel flanges and also on switch blades. In service, evidence of the lubricant has been found on the inside of rails two miles from the point of application.

The curve rail grease has been manufactured to have special physical properties to give low friction characteristics, fret corrosion in lubrication and firm adhesion to the metal surface.

The rail and flange lubricant can be supplied in any conventional container ranging from one pint to 45 gal.

Full details may be obtained from the manufacturer, Jet-Lube Limited, 26-32 Caxton Street, Westminster, London, S.W.1.

Carriage Light Fitting

A TUNGSTEN light fitting, the Cleanlight, is specially designed for use in railway passenger coaches, to combine the best features of both open and enclosed glass fittings. This patented fitting is stated to remain exceptionally clean and efficient in service even where dusty conditions and changes in temperature cause dust to collect inside orthodox glass fittings. It is easily installed and maintained.

A semi-recessed version is in limited production for use with 40-60 W. b.c. and e.s. Pearl or Silverlight lamps, and this is illustrated. The general appearance and a section through the fitting may be clearly seen.

Of concentric design the Mazda Cleanlight consists of a diffusing glass bowl semi-permanently sealed to a reflector back-plate to form a totally enclosed dust-tight annular chamber around the lamp, which is housed in a cylindrical recess or well of clear glass formed through the centre of the glass bowl. The neck of the lamp passes through an opening in the reflector backplate into a lampholder recess behind the fitting. Dust in the air passing over the lamp is convected up the well and through the centre of the fitting.

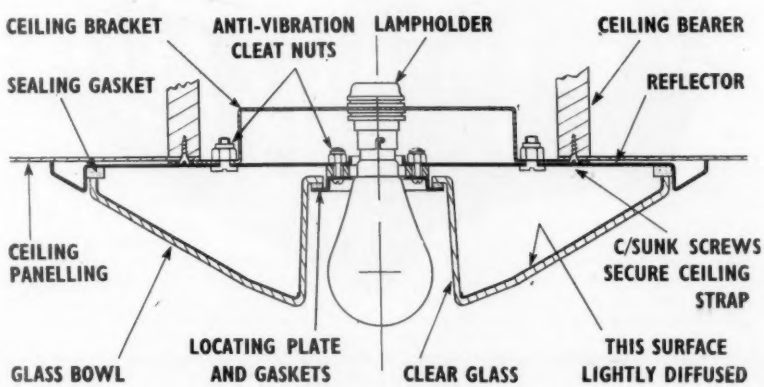
Light from the upper part of the lamp passes through the clear glass walls of the well to the sealed reflector which is of bright satin anodised aluminium, and then through the glass bowl which has a lightly diffusing satin-etched finish on the inside; light from the hemisphere of the lamp is distributed directly. The fitting consists of four basic parts only, and after erection no part need normally be disturbed to clean or fit another lamp to the fitting.

For cleaning, the removal of the lamp exposes the interior of the well, but for a thorough cleaning the bowl can be readily detached from the reflector when after very long service this may become necessary.

A compact type of b.c. lampholder is available for lamps operating on 24-V. supplies; e.s. and standard b.c. lampholders can be used for normal 100-250 V. ranges.

Dimensions of the fitting are: overall dia., 14¼ in.; depth (visible part of fitting), 3 3/16 in.; coiling recess dia., 7¼ in.; and maximum depth of ceiling recess required, 2 in.

The manufacturer is the A.E.I. Lamp and Lighting Co., Ltd., Crown House, Aldwych, London, W.C.2, from whom full details may be obtained.



National Introduces Railcar Engines

The National Gas & Oil Engine Co. Ltd. has announced the development of a range of horizontal oil engines designated NMH suitable for railcar and shunting locomotives which have been, in fact, developed with these applications in mind; a range of vertical engines, the NM type, based on the horizontal versions, is also available.

We were given the opportunity of seeing examples of the new range on June 7 at the company's works at Ashton-under-Lyne: the works, which employs nearly 2,000 people, and covers some 28 acres, are at present producing ranges of diesel, gas and dual-fuel engines for industrial, marine propulsion, auxiliary, and rail traction purposes.

The new engines consist of six- and eight-cylinder models and those for rail applications may be arranged for normal aspiration or mechanical supercharging exhaust — gas supercharging is additionally available on the vertical models. Outputs of from 246 to 438 (horizontal) and up to 533 (vertical) are obtained at the normal maximum speed of 1,500 r.p.m. It is of note that the basic engine design concept was for a horizontal layout, with railway possibilities fully in mind, the vertical version being developed later, the majority of horizontal engines offered for use in railcars being adapted from successful vertical units.

The horizontal engines may be fitted in under-floor locations, and improved visibility from the cab is an advantage of their use in a shunting locomotive.

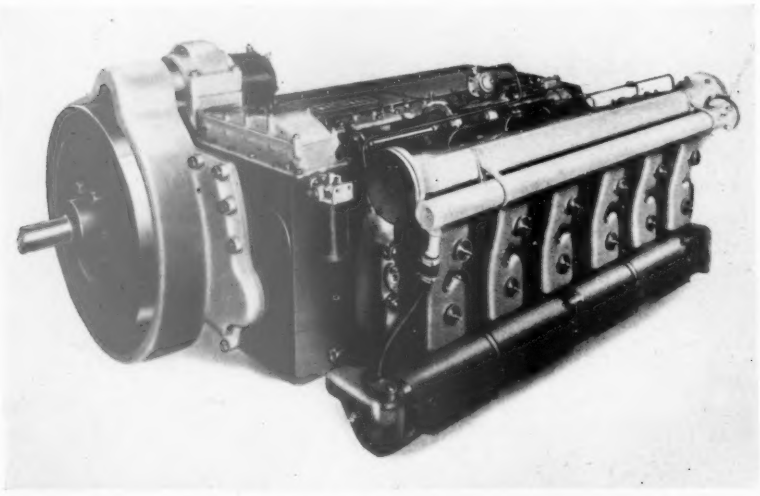
Design Features

Two features which have been incorporated in the design of the units are the elimination of small piping from inside the crankcase and the use of thin-wall, pre-finished copper lead bearings.

Ancillary equipment which is normally fitted on the engine includes C.A.V. or Bryce Berger injection equipment, and Godfrey blower and Napier exhaust gas turbocharger if required.

As may be seen, the horizontal model presents, apart from the starter motor housing, a reasonably clear upper side. The fuel pump, driven by a drive from the ancillary gear train, is fitted on this side. The illustration shows one of the range, the horizontal National "NMHB6" type mechanically supercharged to give 361 b.h.p. at 1,500 r.p.m.

We were also able to see the foundry where 5,000 tons of castings are produced annually, supplying most of the company's cast-iron requirements for engine manufacture, as well as the machine and tool shops where, apart from the normal production processes, prototype work on a 1,000 h.p. gasifyer is being undertaken.



The general appearance of the range of National horizontal engines is seen from the NMHB6 type

Swiss Summer Timetables

The summer timetables of the Swiss Federal Railways, which came into operation on June 2, contain some improved services of considerable interest. Of these perhaps the most notable is the new "Riviera Express," with through coaches from Hamburg, Cologne and Frankfort to Ventimiglia; Brussels, Hamburg, Cologne and Frankfort to Rome; Lille to Milan; and sleeping cars from Brussels and Cologne to Milan. Leaving Basle at 2.45 a.m., this train has no publicly booked stop between there and Bellinzona, and to avoid reversal at Lucerne takes the route used by through freight trains, by the east curve at Olten and continuing through Aarau, Wohlen and Rotkreuz to join the Gotthard main line at Immensee. The length of this run is approximately 160 miles, and it includes, of course, the climb to the Gotthard tunnel. Bellinzona is reached at 6.19 a.m., Lugano at 6.51 a.m., Chiasso at 7.18 a.m., and after 30 min. wait there, Milan at 8.40 a.m. The Aarau-Wohlen route has been used once previously by a through Gotthard express in each direction, but for a short period only.

High-speed Service

Two exceptionally fast trains have been added to the Geneva-Lausanne-Berne-Zurich service. One is at 8.8 a.m. from Geneva, with a 33-min. timing over the 37·4 miles to Lausanne, 63 min. for the 60·4 miles thence to Berne (including the long 1 in 55 climb out at Lausanne), and 85 min. for the 80·7 miles from Berne to Zurich, with numerous speed restrictions. The overall time of 3 hr. 6 min. from Geneva to Zurich is the fastest yet scheduled between the two cities. The return service is at 4.21 p.m. from Zurich, with 86 min. allowed to Berne, 69 min. thence to Lausanne, including a 2 min. stop at Fribourg, and 33 min. from Lausanne to Geneva; the overall time is 3 hr. 14 min., and this is the fastest westbound train of the day.

There are many minor accelerations, as a result of which there are now daily, over the 37·4-mile stretch between Lausanne and Geneva six start to stop runs scheduled in 33 min. (68 m.p.h.), four in 34 min. (66 m.p.h.), five in 3 min. (64·1 m.p.h.), two in 36 min. and three in 37 min.

"Trans-Europe Expresses"

The three diesel streamline trains now included in the "Trans-Europe-Express" group that operate through over Swiss Federal metals between Basle and Zurich are all accelerated. The "Edelweiss" leaves Amsterdam at 11.10 a.m., 60 min. later than the previous connection, and Brussels 17 min. later, at 1.57 p.m.; departure from Basle is 5 min. earlier, at 8.25 p.m., and with a 60 min. run Zurich is reached at 9.25 p.m., 11 min earlier. The "Helvetia" leaves Hamburg at 12.38 p.m., 19 min. earlier, and is 37 min. earlier from Basle, at 10.10 p.m., reaching Zurich at 11.14 instead of 11.51 p.m. From Paris "L'Arbalète," unchanged in departure at 6.20 p.m., leaves Basle 8 min. earlier, at 11.22 p.m., and is into Zurich 5 min. earlier, at 12.29 a.m. In the reverse direction the Paris train is unchanged; the "Helvetia" is unaltered in Switzerland, but is 18 min. earlier into Hamburg, at 6.13 p.m.; the "Edelweiss," however, is completely altered, leaving Zurich at 11.45 a.m., 64 min. earlier, and reaching Brussels at 7.6 p.m., 92 min. earlier, and Amsterdam at 9.48 p.m., 2 hr. earlier.

Acceleration via Ostend

There is a radical acceleration of the night through coach and sleeping car service from Ostend to Berne and Interlaken. This now leaves Ostend at 8.55 p.m. (in connection with the afternoon sailing from Dover), instead of 6.43 p.m., and Brussels Nord at 10.34 instead of 8.22 p.m.; Basle is reached at 6.40 instead of 5.35 a.m., but some of the advantage is then lost by detention there for 75 instead of 49 min. Leaving at 7.55 a.m., this train is combined with a new through coach and sleeping car service from Dortmund and Cologne to Interlaken, including through coaches from Dortmund to Milan and Turin; this reaches Berne at 9.21 a.m., instead of 7.43 a.m., and forms a new train at 9.31 a.m. to Interlaken (10.37 a.m., previously 9.10) and by the Lötschberg line to Brigue, arriving at 11.20 a.m. Milan is reached at 2.25 p.m., only 10 min. later than previously.

The return service has an interesting routing. Leaving Milan 5 min. later, at 2.45 p.m., Brigue at 6.5 instead of 6.8 p.m., and Interlaken Ost at 6.53 p.m. (a new train), the combined express is into Berne at 8 p.m., and then proceeds at 8.10 p.m. via Biel and Delemont to Basle, arriving at 9.55 p.m., 41 min. earlier than the previous Basle connection. By a 14 min. acceleration from Lausanne to Biel of the 6.19 p.m. from Geneva to Zurich, the latter is brought into connection with the Brigue train, so giving a new fast evening service from the south-west to Basle and beyond.

On the Rhaetian Railway an additional express will run, from June 29, from

Landquart at 5.57 p.m. to Klosters, Davos and St. Moritz, arriving at 8.47 p.m.; this will connect with the 4 p.m. from Zurich, and accelerate the journey to Davos by 34 min. and to St. Moritz by 22 min.

For the first time on record, there will be a 60-min. timing over the 46 miles of the Lötschberg main line from Spiez to Brigue, a remarkable figure in view of the lengthy 1 in 37 approach to the 4,067 ft. summit level which has to be surmounted; the train concerned is the 3.47 p.m. from Spiez.

Uses of Tin and Its Alloys

The laboratories of the Tin Research Institute, Greenford, Middlesex, were open for inspection by visitors on July 10 and 11, in celebration of the 25th anniversary of its foundation. Where practicable there were demonstrations of techniques which have been developed, or are used, at the Institute, a noteworthy example being the continuous casting of bronze rods.

The development of aluminium-tin alloy bearings for petrol and diesel engines was seen in the metallurgical laboratory. The aluminium-tin alloy, made from an alloy of aluminium and tin bonded to thin steel strip shells, is prepared as a strip which is then welded to the flat steel strips and the composite material is subsequently formed into half shells and accurately machined to fit the engine shafts.

Advantages of this new technique are stated to be that the fatigue strength, while comparable to copper-lead bearings, is about three times greater than white-metal. A special machine has been developed to stimulate the action of a crankshaft and big-ends of an engine for testing and research purposes.

Electroplating studies at the Institute have led to the development of methods for laying down alloys of tin with other metals as protective or decorative coatings. Amongst the pairs of metals which can be deposited as alloy in this way are tin-copper, tin-zinc, tin-cadmium, and tin-nickel. The tin-nickel electroplate retains a brilliant polish, even in conditions of quite severe corrosion, and can successfully replace chromium plating at a finish on many articles.

Southern African General Managers' Conference

Reference was made in our June 28 issue to the third Conference of General Managers of Railways in Southern Africa held at Victoria Falls, Rhodesia, on June 12-15.

Details now received of the final proceedings show that at the closing session delegates approved the terms of reference for three sub-committees, to report on diesel traction; on the capacity of a single line, including various methods of working and signalling; and on a manual of stores procedure. These sub-committees are in addition to the existing committee dealing with standardisation of certain locomotive and rolling stock parts.

Monsieur G. Wenes, Director General of the Katanga Railway (B.C.K.) proposed that OTRACO, (Office des Transports Coloniaux), which has headquarters in Leopoldville in the Belgian Congo, should be invited to take part in future conferences. The Chairman was asked to extend an official invitation to OTRACO to attend the next conference.

On the invitation of Engenheiro F. F. Pinto Eliseu of the Mozambique Railways the several General Managers agreed to hold the next conference in Lourenço Marques, in 1959.

The Chairman, Lt.-Colonel H. B. Everard, General Manager of the Rhodesia Railways, said a great deal of work had been accomplished and thanked delegates for making the Conference the success it had undoubtedly been.

The heads of each delegation complimented the Rhodesia Railways on the arrangements for the conference and on the high standards that had been set.

Staff and Labour Matters

Threatened Bus Strike

In view of the unions' declaration of their intention to call a national stoppage of provincial omnibus companies today (20 July), and their refusal to submit the matter to voluntary arbitration, the Conference of Omnibus Companies reported the dispute to the Minister of Labour under the Industrial Disputes Order, 1951, with a view to the differences between the two sides of the National Council for the Omnibus Industry being referred to the Industrial Disputes Tribunal for arbitration by it. The Ministry of Labour announced on July 16 that the Minister had decided to take this course.

Municipal Busmen's Wage Claim

Leaders of the municipal busmen employed by local authorities had discussions on July 11 with the employers in connection with the claim for increases of about £1 a week. The leaders have rejected an offer from the employers of an increase of 7s. 6d. a week. No agreement was reached at the meeting, and discussions were adjourned until July 25, which is five days after the date on which the threatened strike of provincial bus employees is due to take place.

Questions in Parliament

Middle East Railway Links

Mr. W. D. Ormesby-Gore, Minister of State for Foreign Affairs, in reply to Mr. Fenner Brockway (Eton & Slough—Lab.) made a long statement on June 26 on the recent conference at Karachi of the Bagdad Pact countries of Iran, Iraq, Pakistan, and Turkey, which included this passage:

In considering the third report of the Economic Committee the Council noted with satisfaction the wide range of planning and achievement by this Committee. Approval has already been given for a number of projects designed to improve communications and to accelerate the development of the region. These include the linking of the Bagdad Pact capitals by telecommunications and the construction of roads and railways. For these projects the United States Government through the Richards Mission has made available the sum of $12,570,000.

Transport of Fish

Mr. Hector Hughes (Aberdeen N.—Lab.) asked the Minister of Transport & Civil Aviation on July 3 if he was aware that, owing to defects of which he had been informed, in the carriage of perishable commodities by train, notably fish from Aberdeen to London, alternative transport by road had become essential; that this involved his permission to extend the number of refrigerated road lorries for which licences may be granted for this kind of work; and if he would investigate the relevant problems and seek or give powers to the appropriate licensing authorities to increase the permitted number of licensed refrigerated road lorries accordingly.

Mr. Harold Watkinson, in a written reply: There has been trouble with hot axleboxes on some of the fish trains from Aberdeen and to avoid this the B.T.C. is fitting about 200 of the newest fish vans with roller bearings. Under the Road and Rail Traffic Act, 1933, it is for the Licensing Authorities and not for me to grant any Road Carriers' licenses for this kind of work, if they are satisfied that more vehicles are necessary.

Smoking in Underground Trains

Mr. A. Blenkinsop (Newcastle-on-Tyne N.—Lab.) asked the Minister of Transport & Civil Aviation on July 3 what action he was now taking by appropriate regulations or general directions to prohibit smoking in single-deck buses and in underground trains.

Mr. Harold Watkinson, in a written reply: As the Parliamentary Secretary to the Ministry of Health explained in the statement he made on June 27, the Government policy is to make known the risks of smoking, leaving it to individuals to make up their own minds. It would therefore be inappropriate to introduce general prohibitions of this kind at present, but the position will be kept under review.

Lewes—East Grinstead Line Inquiry

Major Tufton Beamish (Lewes—C.) asked the Minister of Transport & Civil Aviation on July 3 what arrangements would be made under Section 6 (7) of the Transport Act, 1947, for examining the B.T.C. proposal to close the railway between Lewes and East Grinstead.

Mr. Harold Watkinson, in a written reply: In accordance with the view of the special report from the Committee of this House on the British Transport Commission Bill I have asked the Central Transport Consultative Committee to take the exceptional course of itself conducting a local public inquiry into this proposal when it is submitted again. At the same time I want to make it clear that I have the fullest confidence in the ability and integrity of the Area Transport Users' Consultative Committees, which normally review proposals for closing branch lines, and in particular of the South Eastern Area Committee, which has already been concerned with this scheme.

CANADIAN CAR & FOUNDRY COMPANY EXPANSION.—The Montreal railway equipment concern of the Standard Railway Equipment Manufacturing Company of Chicago has been acquired by the Canadian Car & Foundry Company, a subsidiary of A. V. Roe (Canada). Canadian Car & Foundry is taking over all business formerly carried on at the Lachine, Montreal, works. It has been announced that the Montreal company will sell and service a variety of railway wagon equipment, including boxcar roofs, hopper car doors and similar items. Manufacture of these products will continue to be carried out at the Lachine plant until modernised facilities, which Canadian Car & Foundry is building at its Dominion plant, are completed in about a year's time.

Parliamentary Notes

Commons Debate British Transport Commission Annual Report

Financial arrangements proceeding to plan: criticism of contract procedure

The House of Commons had a full day's discussion on July 10 on the railway services on a formal motion that the House "take note of the Ninth Annual Report, Statement of Accounts and Statistics of the British Transport Commission for 1956."

Mr. Harold Watkinson, Minister of Transport & Civil Aviation, expressed his appreciation of the opportunity it gave "to try to look forward and see what the future holds, to consider whether the Commission seems to have charted the right course, and that Government support which has been given to it is support which will bring about, at the earliest possible moment, an efficient, modern, and, I hope, reasonably low-cost railway system."

Mr. Watkinson said the new financial arrangements had gone to plan, the Commission Report was a completely unbiased and factual statement of how the Commission thought things were going, and should go. With the Area Boards set up, the Government thinks that the right kind of framework has been set for this great business.

The Commission hopes that "the whole fabric of public transport will no longer be subject to periodic and seismic upheaval" exactly represented the position to which the Government had now brought the Commission. The railways "did amazingly well" during the fuel rationing period.

Growth of Diesel Fleet

By the end of 1956 nearly 400 diesel vehicles had been delivered. Remarkable increases in receipts had followed the production of this kind of train. The present orders for diesel main-line locomotives are for 230 locomotives—43 being built in British Railways workshops and 187 by outside contractors. Further orders are to be placed—the whole procurement programme totals about 2,500 main line diesels. After 1961 the Commission hopes to step up the pace of electrification. The first main-line electric locomotives are expected to be in operation in October, 1958.

The question which must worry any Minister of Transport—and it worried the Commission—was not whether the railways would achieve too little, but whether they might achieve it too late to regain the traffics which they were losing and had lost to the roads. If they gained them too late, they could not regain solvency. It was the crux of the modernisation problem. A sign of progress was that the planned programme for the fitting of continuous brakes was being exceeded in the current year.

"The money spent on modernisation really cannot serve the nation's needs and give a proper return unless it is matched by a new approach by the men—every man, whatever his station in the Commission—by a new approach to current problems. It has always been my fervent hope that the enormous demands of this great task will bring a change in the mental outlook. . . . I believe that the railways have come a long way in this since I first came into contact with this problem, when I was at the Ministry of Labour, and that there has been a sharp change . . . in the attitude of the railwaymen to their task." The House should take note of the significant words in an article by Mr. James Campbell, General Secretary to the N.U.R.: "It should be obvious to us as employees in the industry that our future depends in a large degree on the contribution we make, both individually and collectively, to improving efficiency. What we put in is every bit as important as what we take out." "If one can see that kind of approach in action," Mr. Watkinson said, "I think that the modernisation programme will succeed, and that the British Railways Productivity Council, which plays such an important part, will succeed, too."

To some extent, there was the difficult interim phase during which the railways had to try to regain traffics with equipment not yet sufficiently modernised. The Commission was introducing 400 wagons of a newly developed design to enable cement to be transported in bulk and discharged under pressure: building railway containers and pallets suitable for the conveyance of bricks, tiles, slates, and so on; evolving a new standard of container to carry a much greater payload, and developing fork lift trucks and new types of cranes which will handle lorry loads to be landed from a lorry, or perhaps sometimes in the body of the lorry itself; and building a special stock of fast freight wagons which will be used as far as possible only between Aberdeen and London. It is realised, he explained, that there is no use having an overnight service if long delays are experienced in loading and unloading. That is the principle behind the development of new freight terminals, where the clearance of goods should be much quicker.

Taking 1938 as 100, fares stood at 200 and wages at 286. The freight position is much more difficult, but the new charging scheme puts the railways on a fairer basis. A policy of relating charges more nearly to the use of resources ought to greatly help the profitability of the railways.

Since the last increases in freight charges were made, the Commission working costs have increased by £40 million. Of that, £21 million is due to increases in wages, and £19 million due to increased costs of coal, steel, road fuel, tyres, and so on.

Case for Subsidy

Mr. Ernest Davies (Enfield E.—Lab.) said that for the first time, taken together, the railways had failed to cover their working expenses by the very large sum of £16·5 million. It would have been far better if the Government faced the position as it is, and decided to meet the deficits out of a direct subsidy. The decline in freight was not the cause of the Commission failure; it was rather a symptom of the disease. In spite of considerable improvements there was still great unpunctuality in passenger services.

He was one of a party of M.P.s who were greatly impressed by the very high overall average speeds which the French railways were able to maintain. What he should like to see would be a network of diesel services, combined with electrification. Another impressive thing was the enthusiasm for modernisation.

In view of the huge orders now being placed, the Commission's principle should be that in all but exceptional circumstances competitive tenders should be sought from all suppliers with the necessary resources.

Mr. R. Gresham Cooke (Twickenham—C.) thought the Commission should be left to get on with its work, to see whether it can make a profit in the future, and to render a service to the nation in the years to come.

Mr. W. Ross (Kilmarnock—Lab.) said that there was far too much criticism of the railways—about cleanliness of engines and carriages, for example—which was not soundly based.

Contract Procedure

Mr. George Strauss (Vauxhall—Lab.) said a weak point in the Commission's set-up was the purchasing system, and he was sure that the Commission recognised this. Was the Minister satisfied with the system?

A year ago the Commission gave an order for an essential part of vacuum brake equipment to a well-known firm which had supplied the railways for years, with great satisfaction. The quotation was £30 a unit, and this was accepted at first. When competitive tenders were sought, it was found that other firms of equal standing were prepared to quote £20-£24. Hearing of this, the original firm reduced their price to £23. About £7 million was likely to be saved.

Contracts for signalling equipment had been placed on a cost-plus basis. Other firms were allowed to submit competitive tenders, but maintained that the conditions made effective competitive tendering impossible. They protested to the Commission, but their representations were wholly ineffective.

Mr. G. H. R. Nugent, Joint Parliamentary Secretary to the Ministry of Transport and Civil Aviation, said it had been a very useful debate. The principle now actuating the Commission in its rearrangements regarding contracts was that purchasing should be regarded as a special technique, that it should be in the hands of experienced men, and that the business of the technical staff was to define and design what was wanted and they should be relieved of the commercial dealings involved in its procurement. The general practice of the Commission in placing contracts was to purchase by competitive tender. No exceptions were permitted without the express approval of the Commission. The Minister and himself undertook to look into the whole situation with the Commission to assure themselves that this was being done as well as it could be in the national interests.

Passenger traffics were still higher than at the same time last year, and freights had been held at the same level. Since at this time last year they were in a declining trend, the fact that they were today roughly parallel with that year showed an improvement. It was extremely difficult to get domestic staff either for catering or for coach washing and so on. He would ask the Commission to take note of the suggestion during the debate about arrangements for telephoning direct from trains. Consultations with the N.C.B. and the C.E.A. had resulted in quite a significant increase in the amount of coal being carried by rail. There was a good prospect that both management and men would measure up to the great developments.

Contracts and Tenders

Electric locomotives for South African Railways

An order for 135 2,000-h.p. four-axle electric locomotives has been placed by the South African Railways administration with Metropolitan-Vickers South Africa (Pty.) Limited on behalf of Metropolitan-Vickers Electrical Export Co. Ltd. The order is valued at £7,600,000. The electrical equipment will be made at the Sheffield and Trafford Park works of Metropolitan-Vickers and the mechanical parts will be manufactured at the Stockton works of Metropolitan-Vickers—Beyer, Peacock Limited, where the locomotives will be erected.

London Transport have placed a contract with the Demolition & Construction Co. Ltd., for the widening of Bridge E.S.30 which carries Western Avenue over the Central Line between North Acton and West Acton stations. The work, which is estimated to cost £30,000, is expected to be completed in 40 weeks.

British Railways, North Eastern Region, have placed the following contracts:—

Tarslag Limited, Stockton-on-Tees: accommodation for wagon repairs, Simonside, Tyne Dock

Charles R. Price, Doncaster: administration and amenities block, new motive power depot, Thornaby

Scottish Machine Tool Corporation Limited, Johnstone: wheel lathe, carriage and wagon shops, Walkergate

Tubewrights Limited, London: yard lighting, motive power depot, Thornaby

Wm. Jones Limited, London: track preparation work in advance of electrification, East Coast main line, Shaftholme and Barnby Dun.

The Special Register Information Service, Export Services Branch, Board of Trade, reports a call from Australia for 20 C17 class locomotive boilers.

The issuing authority is the Secretary to the Commissioner, Adelaide Street, Brisbane, from whom copies of drawings, specifications, conditions of tendering, and general conditions of contract may be obtained, upon payment of £7 per set. A set of tendering documents can be seen at the office of the Agent General for Queensland, 409 Strand, London, W.C.2. Tenders must be enclosed in an envelope endorsed "Tender for C17 Locomotive Boilers" and accompanied by a deposit equal to one per cent of the amount of the tender. The closing date is August 15, 1957. No further information is available at the Branch (Lacon House, Theobalds Road, W.C.1) about this call for tenders. The reference ESB/16599/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from Greece for a large quantity of small railway material for standard and metre gauge lines, full details of which can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1.). The closing date is July 25, 1957. The reference ESB/17196/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from India for cast steel bearer sides for railway wagon bogies, to ex-B.N. Rly. C.M.E.'s drawing No. 9614 items A and C (I.S.D. No. 13379) and to I.R.S.S. No. M2/48, class A grade 1, class BBS, CCS, and AAS.

The issuing authority is the Director General of Supplies and Disposals. The tender No. is P/SRI/16589-G/I. Bids should be sent to the Director General of Supplies and Disposals, Shahjahan Road, New Delhi. The closing date is July 30, 1957. A set of tender documents including drawing but not specification is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1.). The attention of United Kingdom firms is drawn to a booklet issued by the Government of India entitled "Conditions of Contract Governing Department of Supply Contracts," a copy of which is available for inspection at the Branch. The reference ESB/17288/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from Uruguay for:

rubber equipment for wagon brakes and running shed uses, including rubber and cloth sleeves for automatic brakes, rubber and synthetic rubber piping, hoses for cleaning boilers, special rubber diaphragms, and rubber rings for emergency valves.

The issuing authority is the Administración de Ferrocarriles del Estado. The tender No. is 318/57. A guarantee of Ur. $2,000 is required for maintenance of offers. The closing date is August 15, 1957. A copy of the specification in Spanish is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1). Local representation is essential. The reference ESB/17047/57 should be quoted in any correspondence with the Branch.

Notes and News

Multiple-Unit Diesel Trains for British Railways.—In the multiple-unit diesel train sets described in our issue of July 5, built by D. Wickham & Co. Ltd. for British Railways, the whole of the door-locks are being supplied by Joseph Kaye & Sons Ltd. of Leeds.

Dorada Railway Offer.—The Seton Trust has notified the Dorada Railway Company that the clients on whose behalf the Trust made an offer to purchase the £604,347 stock of the company at £59 10s. per £100 stock, have determined to accept as sufficient such acceptances of the offer as have been already received. The offer has accordingly become unconditional.

New Car/Sleeper Office at Kings Cross.—In view of the popularity of the "Car Sleeper" service from London to Perth, the Eastern Region has opened a new office in Kings Cross Station to deal exclusively with bookings and enquiries regarding this facility. The office is on the second floor on the west side of the station and consists of a reception room and an office for day-to-day working. The telephone number is Terminus 4200, exts. 3626 and 3627.

Scottish Region Loudspeaker Van for Rail Information.—A send-off was given on July 11 at Glasgow Central Station by Mr. S. E. Raymond, Chief Commercial Manager, Scottish Region, to a van specially equipped by the Region for providing travel information by loudspeaker. The van is touring the suburbs of Glasgow and broadcasting day-to-day information on the choice of rail and steamer excursions available for Glasgow Fair holidaymakers.

New Cars-by-Rail Service between Fort William and Mallaig.—The Scottish Region has introduced a new facility for motorists accompanying their cars by rail between Fort William and Mallaig. This new service is provided at a cost of £3

Reception room in new "Car/Sleeper" office at Kings Cross

per single journey, and the charge includes second class travel for the driver and conveyance of car. A maximum of three cars can be accommodated on each train; the stationmasters at Fort William and Mallaig make all arrangements.

Expansion of Accurate Screw Threads Limited Plant.—The Sheffield Twist Drill & Steel Co. Ltd. has announced completion of new extensions and installation of new machinery at its subsidiary company, Accurate Screw Threads Limited, Precision Works, Hednesford, Staffs. The company is now in a position to undertake further sub-contract work, such as complete assemblies, precision and repetition machining. The Resident Director is Mr. G. Sharpe.

Ruston & Hornsby Orders.—In his comments on the report and accounts of Ruston & Hornsby Limited for the year ended March 31 last, Mr. W. J. Ruston, the Chairman, states that the order book now stands at a higher level than a year ago despite an acute shortage of work on smaller sizes of oil engines. Demand for the larger sizes of engines and locomotives, gas turbines, and boilers continues to be brisk. He believes that the recent wage increases unless accompanied by greater production per man-hour may result in greater loss of business to foreign competitors. However, he feels that the company should be able to continue to secure its share of world demand and that the current year's results will compare favourably with those of the past year.

New View of B.T.C. Headquarters.—Clearance of adjacent property preparatory to a rebuilding scheme has enabled (probably for the first time) an unobstructed view to be taken of the British Transport Commission headquarters at 222, Marylebone Road, London, N.W.1. Built by the Great Central Railway as part of its London Extension Scheme of the 1890s, the building was the Great Central Hotel until 1939; during the last war it was requisitioned and used as an army transit centre, and in 1945 was acquired by the former L.N.E.R. with a view to its being the headquarters of the company. On nationalisation in 1948 it became the headquarters of the Railway and other Executives. Since 1953 it has been the headquarters of the B.T.C. and of British Road Services.

Motor Rail Limited.—The consent of the Capital Issues Committee has been obtained to a three-for-seven capitalisation issue to be made by Motor Rail Limited. The dividend for the year ended March 20 will be 8 per cent on the capital as increased, against 10 per cent on the present capital. Group net profits rose to £35,626 from £28,142 in the previous year after tax of £38,350 (£29,500).

British Electric Traction Co. Ltd.—Current assets of the British Electric Traction Co. Ltd. and subsidiaries as at March 31 last were £5,095,449, compared with £3,726,898 a year before. Current liabilities were £5,932,292 (£2,372,388). The working profit rose from £1,413,676 to £2,109,874 and £2,846,645 (£2,637,302) was drawn from investments. Net profits were £2,140,263 (£1,910,373). The dividend on the deferred ordinary stock is raised from 22½ per cent to 25 per cent. The annual meeting is on July 25.

Visit of B.T.C. Representatives to Elliott Bros. (London) Ltd. Computing Division.—Fifteen representatives from the British Transport Commission headquarters, British Railways, British Road Services, London Transport, and the Scottish Omnibuses Group recently spent a day at the Borehamwood establishment of Elliott Bros. (London) Ltd. The visit was to the company's Computing Division and, besides a tour of the various research, development and production departments, included detailed discussion of possible applications of computing and automation techniques to transport problems. This discussion was attended also by representatives from Associated Automation Limited and R. N. Saxby Limited, makers of certain ancillary equipment used with Elliott computers, and of the National Cash Register Co. Ltd., the marketing organisation for the National-Elliott 405 Data-Processing System. The visitors were led by Mr. G. H. Hinds, Electronics Advisory Officer to the B.T.C., and the proceedings were under the general chairmanship of Dr. L. L. Ross, Technical Director of Elliott Bros. and a Director of Associated Automation Limited. Discussions of Transport problems opened with short talks from six of the visitors on fields in which automation might have applications; these included accountancy, stock control, analyses of traffic and plant utilisation, job evaluation, and method and work study.

Unobstructed view of British Transport Commission headquarters offices, made possible by demolition of adjacent buildings

James Scott Dividend Raised.—James Scott & Company is raising its final ordinary dividend from 13 to 15 per cent to make 20 per cent for the year to January 31, 1957, against 18 per cent in the previous year. After tax of £104,290 (£91,838) and depreciation of £32,120 (£25,720), the net profit has risen from £90,009 to £94,401.

Full-Scale Alweg Coach Built.—The first full-scale motor coach to be built for trials on the Alweg monorail system has now been completed and is to be tested on a track in the Fühlinger Heide near Cologne. The coach is expected to attain a speed of some 240 m.p.h. against the 88 m.p.h. of the small-scale train used for earlier tests.

Extension of Glacier Metal Co. Ltd. Factory.—A three-storey warehouse and office block has been opened by the Glacier Metal Co. Ltd. opposite its main London factory at Alperton. The new building houses the main stores and administrative offices of the Replacement Bearing Unit, a self-contained section concerned solely with the storage, packaging and merchandising of their automobile, truck and tractor replacement bearings and bushes, for both home and export markets. Occupying some 20,000 sq. ft of floor space including two warehouse floors and three despatch bays on the ground floor, the building also contains the reboring department, where stock bearings are rebored to various sizes against special orders.

Keith Blackman Progress.—In the annual review circulated with the report and accounts for the year ended March 31 last, Mr. D. S. Woodley, Chairman and Managing Director, Keith Blackman Limited, states that severe competitive conditions, instability in the labour position, and the inflationary trend leading to higher production costs all persisted in the year under review. Against that background, he considers the ability of the company to continue to make a substantial profit to be a measure of satisfactory progress. An ordinary dividend of 15 per cent is recommended. There was a balance for the year of £462,298, of which taxation takes £190,845, general reserve £75,000, and dividends £58,075, leaving £138,378 to be carried forward.

London Transport Apprentices' Success as Model Makers.—Two London Transport apprentice bodymakers from the Acton railway works have succeeded in winning prizes in the nation-wide 1957 Drawing & Handicrafts Competition held under the auspices of the Institute of British Carriage and Automobile Manufacturers. The first prize (£10) was awarded to C. Foster, for his scale model of a Metropolitan Line carriage door, and the third prize (£3) to

A. Packer, who exhibited a scale model of a bus emergency exit door. The exhibits are now being shown in the provinces, and it is hoped in due course to be able to display the London Transport work in the apprentices' showcase at Acton Works. The work, carried out at the Regent Street Polytechnic, is considered to be of outstanding merit.

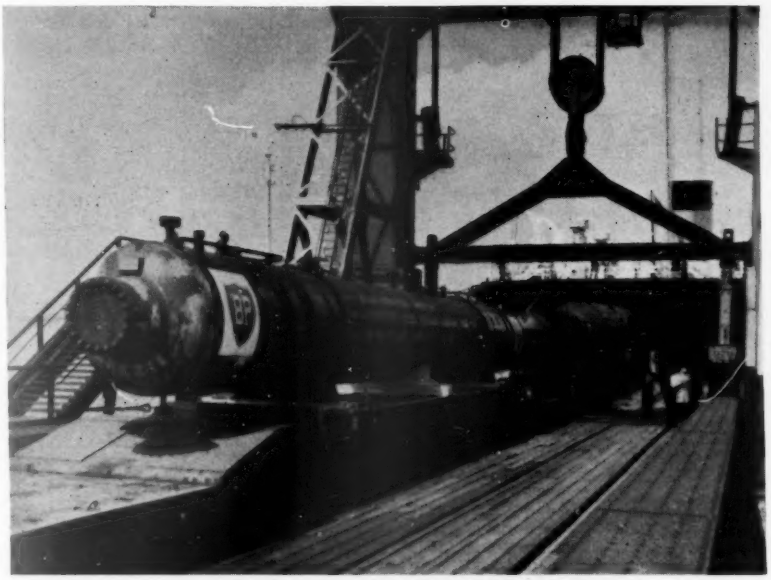
G.N.R.(I.) Footplatemen to have Equal Pay with U.T.A.—The Irish Railway Wages Board recently recommended that the basic pay of Great Northern Railway drivers and firemen be raised to make them equal to those of the corresponding Ulster Transport Authority grades. The new rates are retrospective to December 3, 1956.

Metal Industries Limited.—The group balance sheet of Metal Industries shows that, at March 31 last, current assets were £7,630,000 compared with £7,890,000 a year earlier. Current liabilities were £1,753,000 (£3,344,000). Authority has been given for substantial expenditure in respect of certain subsidiaries. The Chairman, Sir Charles Westlake, expresses the hope that there will be further developments of a similar nature in the future.

Birfield Engineering Limited.—Birfield Limited has announced formation of a new subsidiary company, Birfield Engineering Limited, with the special function of co-ordinating engineering activities among the companies that make up the Birfield Group. The new company's activities will include both the improvement of current, and the development of new products for the Group. The Managing Director of Birfield Engineering Limited will be Mr. G. W. M. Lush; Mr. D. Bastow and Mr. E. J. Rabson will also be Directors. The headquarters of the new company are to be in Birmingham near the factory of Hardy Spicer Limited in Chester Road as soon as building is completed.

Radio-Controlled Mobile Cranes at Royal Show, Norwich.—British Railways mobile cranes fitted with two-way radio telephone equipment have been used with success at the Royal Show, Norwich, held on July 2-5. It has been found that the use of radio telephony in controlling the distribution of cranage facilities on the Show Ground has eliminated unnecessary time wasting by vehicles and drivers, and speeded up the unloading of traffic. The six mobile cranes are controlled from a base set which is situated at a strategic point; by this means a crane can be quickly directed to any point on the Show Ground where it is most urgently required. The mobile cranes have primarily been used for unloading the large amount of container traffic which has come by rail to Norwich and transported by British Railways road vehicles to the Show Ground. The radio-telephone equipment has been rented to British Railways by Pye Telecommunications Limited, Cambridge.

Seventy-Ton Oil Refinery Drum Conveyed by Train Ferry.—Two large items of oil refinery equipment, a drum weighing 70 tons and a tower weighing 44 tons, arrived at Harwich recently on the *Essex Ferry*, the newest vessel of the Eastern Region train ferry fleet. The consignment, which has come across Europe by rail, is en route from Venice to the Isle-of-Grain Refinery of the British Petroleum Co. Ltd. Whilst the conveyance of heavy machinery on the Harwich-Zeebrugge train ferry service is by no means unique, this is stated to have been quite an exceptional consignment; the drum is 60 ft. long with a diameter of 5 ft. 6 in. and the tower 80 ft. long and 7 ft. 6 in. in dia. Special rail wagons, a 50-ton Salmon wagon and a 100-ton flat EU wagon, were sent to Venice to carry this equipment. Eventually this consignment was worked forward as an out-of-gauge load from Harwich to Grain, Kent, via Temple Mills, Crouch Hill, Gospel Oak, Willesden, and Kew.



Wagons conveying oil refinery equipment being drawn off British Railways' "Essex Ferry" at Harwich

Mr. R. C. Bond at Skefko Works.—On the occasion of the recent Automobile Division Summer Gathering of the Institution of Mechanical Engineers, a party of members who toured the Sundon Factory of the Skefko Ball Bearing Co. Ltd. included Mr. R. C. Bond, Member of the Council of the Institution, and Chief Mechanical Engineer, British Railways Central Staff. The accompanying illustration shows him examining some of the SKF axleboxes for British Railways at present in course of production. With Mr. Bond are (centre) Mr. A. Lamm, the company's Technical Manager, and Mr. W. Thompson, Chief of the Railway Bearing Division of the firm.

Lighting at Gainsborough Central.—Modern electric lighting is being installed in the passenger station, goods depot, and marshalling yard at Gainsborough Central, Eastern Region. On the passenger station, high pressure mercury-vapour colour corrected type lamps on concrete columns are being installed at the open ends of the platforms, and enclosed fluorescent fittings incorporating the station name are being fitted beneath the platform awnings. Fluorescent lighting is also being installed in the booking and parcels offices, with filament lamps in the remainder of the accommodation. The station approach road will be lit by colour corrected

Mr. R. C. Bond examining axleboxes at the Skefko works at Sundon

mercury-vapour type lamps. At the goods depot, there is to be new office lighting, and the goods shed will have cold cathode type fittings. In the goods yard and marshalling yard, mercury vapour type lamps are being installed, and a 50-ft. tower carrying a twin Bi-way lantern will provide illumination for the goods yard and approach roadway. The work is being carried out by Stewart Maggs Limited, of Doncaster, to the requirements of the Chief Mechanical & Electrical Engineer, Eastern and North Eastern Regions, Doncaster.

Beyer, Peacock Offer for Anti-Attrition Shares.—Beyer, Peacock & Co. Ltd. has made an offer for the whole of the 4,000,000 2s. ordinary shares of the Anti-attrition Metal Company on the basis of one £1 ordinary share in Beyer, Peacock, credited as fully paid, for every 20 ordinary 2s. shares of Anti-Attrition, plus cash payment of 3d. for each ordinary share of the company. The Beyer, Peacock ordinary shares will be converted on issue into ordinary stock transferable in units of 5s. In recommending acceptance, the board of the Anti-Attrition Metal Company states that the outlook for the company as a separate entity is restricted by lack of adequate liquid capital, necessitating curtailment of essential expenditure.

Locomotive Named by Chief Scout.—At a ceremony at Euston Station on July 16, Lord Rowallan, the Chief Scout, gave his name to British Railways, London Midland Region, "Britannia" class locomotive No. 70045. The unveiling of the locomotive nameplate took place on platform 7, which was decorated with flowers and flags for the occasion. There were present a guard of honour of Boy Scouts and many distinguished guests including Lady Rowallan; General Sir Robert Lockhart and Lady Lockhart; Captain Sir Ian Bolton, Chairman of the Scottish Area Board; Mr. David Blee, General Manager, London Midland Region, and Mrs. Blee; and other London Midland Region officers and their wives. A guest locomotive was present also—No. 46169 *Boy Scout*, which had been named by the former Chief Scout in December, 1930, on behalf of the Scouts of the Empire. Lord Rusholme, Chairman of the London Midland Area Board, presided at the ceremony, and afterwards presented Lord Rowallan with a framed photographic enlargement of the locomotive suitably inscribed. It is intended that *Lord Rowallan* shall be used to haul special trains to the Boy Scout International Jubilee Jamboree at Sutton Park, which takes place on August 1-12.

Commonwealth Inspection of British Welding Processes.—New electric welding processes and products were studied by a party of visitors to the British Commonwealth Welding Conference who recently visited the works and research laboratories of Quasi-Arc Limited at Bilston, Staffs. They saw demonstrations of the new Fusarc/CO_2 automatic welding process in which, for the first time, a covered electrode and an additional protective shroud of CO_2 are used. They also saw demonstrations of the "3 o'clock" Unionmelt welding process, and the Sigma process, watched the manufacture of the company's electrodes, and saw demonstrations of some of the new manual electrodes recently introduced, including the new Quasi-Arc iron powder electrode which has exceptionally high weld metal quality and is suitable for welding in all positions. The visitors were welcomed by Mr. J. Strong, Chairman; Dr. Nicol Gross, Managing Director, and Mr. R. Butler, Sales Director.

George Cohen 600 Group.—Combined profits of the George Cohen 600 Group Limited for the year ended March 31 last amounted to £2,336,628 compared with £1,856,808 for the previous year. Taxation took £1,238,942 (£966,817). Combined profits after all charges, including taxation and unsecured notes, amounted to £1,097,686 (£889,991). A final dividend of 8½ per cent is proposed on the £3,125,000 ordinary stock. This compares with 7½ per cent on £2,500,000 in 1955-56. Amounts of £200,000 (£233,901) and £220,660 (£231,614) are transferred to general reserve for the parent company and subsidiary companies respectively.

Forthcoming Meetings

Open currently and until further notice.—British Transport Commission: Historical Exhibition "Transport Treasures" in Shareholders' Meeting Room, Euston Station, from 10 a.m. to 6 p.m. on weekdays, and 2 to 6 p.m. on Sundays. Admission 6d.

Railway Stock Market

Stock markets have reflected prevailing uncertainty as to how serious is the inflation danger and whether it will require drastic measures in the next few months. At the present time it seems no moves of a drastic kind are considered necessary. At the end of last week, when there was talk in the City that the Chancellor of the Exchequer, Mr. Peter Thorneycroft, might propose restraint in dividend payments, share prices fell sharply, but later there was a fairly general rally. On the other hand, the downward trend in British Funds continued, partly owing to fears that a higher bank rate may be in prospect, and War Loan 3½ per cent fell to an all-time low level of 66½.

There was little business passing in foreign rails, and generally prices were virtually the same as a week ago. Largely because of falling off in demand, and not owing to selling, Antofagasta ordinary stock was again fractionally lower at 33, though the preference stock remained at 44, and the Bolivia debentures were again 93½.

Dorada ordinary stock changed hands fairly actively around 60¼. Taltal Railway shares remained at 12s. 6d., Brazil Railway bonds at 7 and Costa Rica ordinary stock at 22. In other directions, Mexican Central "A" bearer debentures strengthened from 67½ to 69. United of Havana income stock has kept at 8½ and the consolidated stock at 2¼.

Canadian Pacifics remained active, in common with most dollar stocks, but attracted some profit-taking and were $72½, compared with $73¼ a week ago, while the preference stock was £53½ and the 4 per cent debentures £62¾. White Pass shares were $21¾, compared with $23½ a week ago.

In other directions, Nyasaland Railways shares have changed hands up to 12s. 9d.

The shares of locomotive builders and engineers rallied with the general trend of markets after an earlier fall, but showed a number of declines as compared with a week ago. Beyer Peacock 5s. shares have come back from 11s. to 10s. awaiting the outcome of the offer to shareholders in Anti-Attrition Metal. G. D. Peters were again 27s. 6d. and Westinghouse have eased from 39s. 6d. to 38s. 9d., but elsewhere, Charles Roberts 5s. shares were 13s., compared with 12s. 7½d. a week ago.

In other directions, Wagon Repairs 5s. shares remained at 13s. 9d., but Gloucester Wagon 10s. shares eased 3d. at 16s. 9d. At Glasgow, Hurst Nelson were again 36s. North British Locomotive have lost some of their recent exceptional activity and were 19s. 1½d. compared with 20s. 3d. a week ago. Birmingham Carriage, after a further advance, came in for some profit-taking, but at 20s. 10½d. were virtually the same as a week ago.

There was activity in General Electric shares around 54s. 3d. in front of the financial results. Associated Electrical were 61s. 9d. compared with 62s. 6d. a week ago, and English Electric 63s., compared with 62s. 9d. B.I. Cables at 50s. 6d. were 1s. lower on balance and Vickers at 41s. 9d. and Cammell Laird 5s. shares at 10s. 10½d. also moved lower as compared with a week ago. George Cohen 5s. shares at 13s. 9d. were helped by the good financial results, while elsewhere, T. W. Ward at 82s. strengthened further because of higher dividend hopes. Renold Chain shares were 38s., while British Timken at 66s. 9d. more than held last week's good advance, but there has been a sharp reaction to 36s. 6d. in British Oxygen, which a week ago rose to 38s. 3d.

Pressed Steel 5s. shares were 17s. 3d. In other directions following the news of a joint company for atomic energy developments, Hawker 5s. shares moved up to 42s. 6d. and John Brown were 35s. Shares of the Dowty Group were 37s. 6d. Apart from a rally in United Steel to 33s. 3d. steels were inclined to ease although the City continues to assume that Dorman Long and a number of other companies will follow a less conservative dividend policy in future.

OFFICIAL NOTICES

BRITISH RAILWAYS WESTERN REGION. Applications are invited for the following VACANCIES in the STEELWORK OFFICE of the Civil Engineering Department at Paddington. (1) TECHNICAL ASSISTANT experienced in bridge and structural designing and draughting, estimating and preparing contracts. Workshop training an advantage. Salary Range: £809/877. (2) ENGINEERING ASSISTANTS experienced in designing and detailing bridges in (*a*) Steel and (*b*) Reinforced and prestressed concrete. Salary Range: £916/956. (3) TECHNICAL ASSISTANTS designing and detailing bridges and structures in (*a*) Steel and (*b*) Reinforced and prestressed concrete. Salary Range: £809/877. All these posts carry travel concessions, holidays with pay and permanency.—Applications, stating age, previous experience, etc., to Chief Civil Engineer, B.R. Western Region, Paddington Station, London, W.2.

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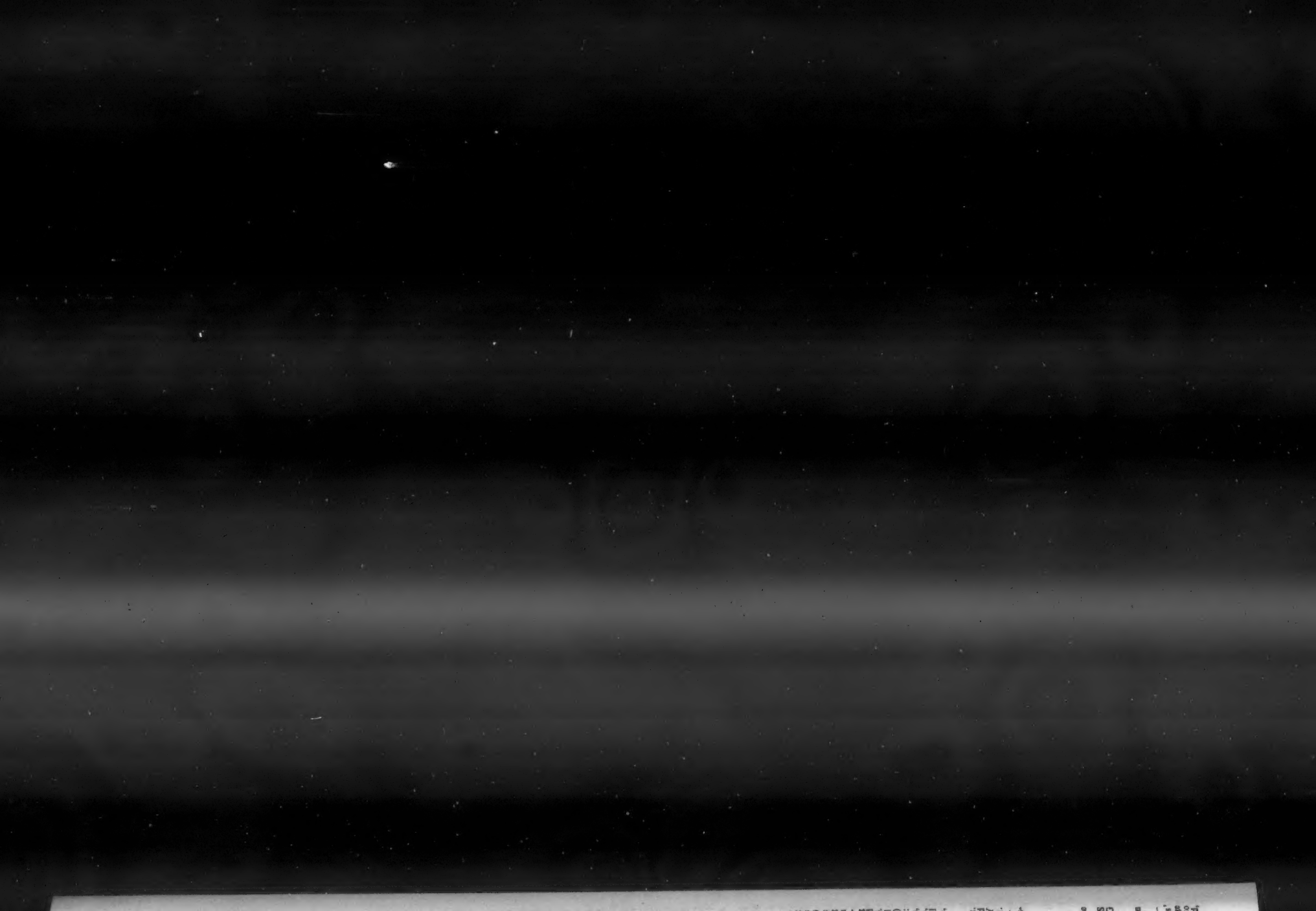
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